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Bowfishing For Carp
Annual Report

MARCH 1975

The Florida Magazine for all Sportsmen

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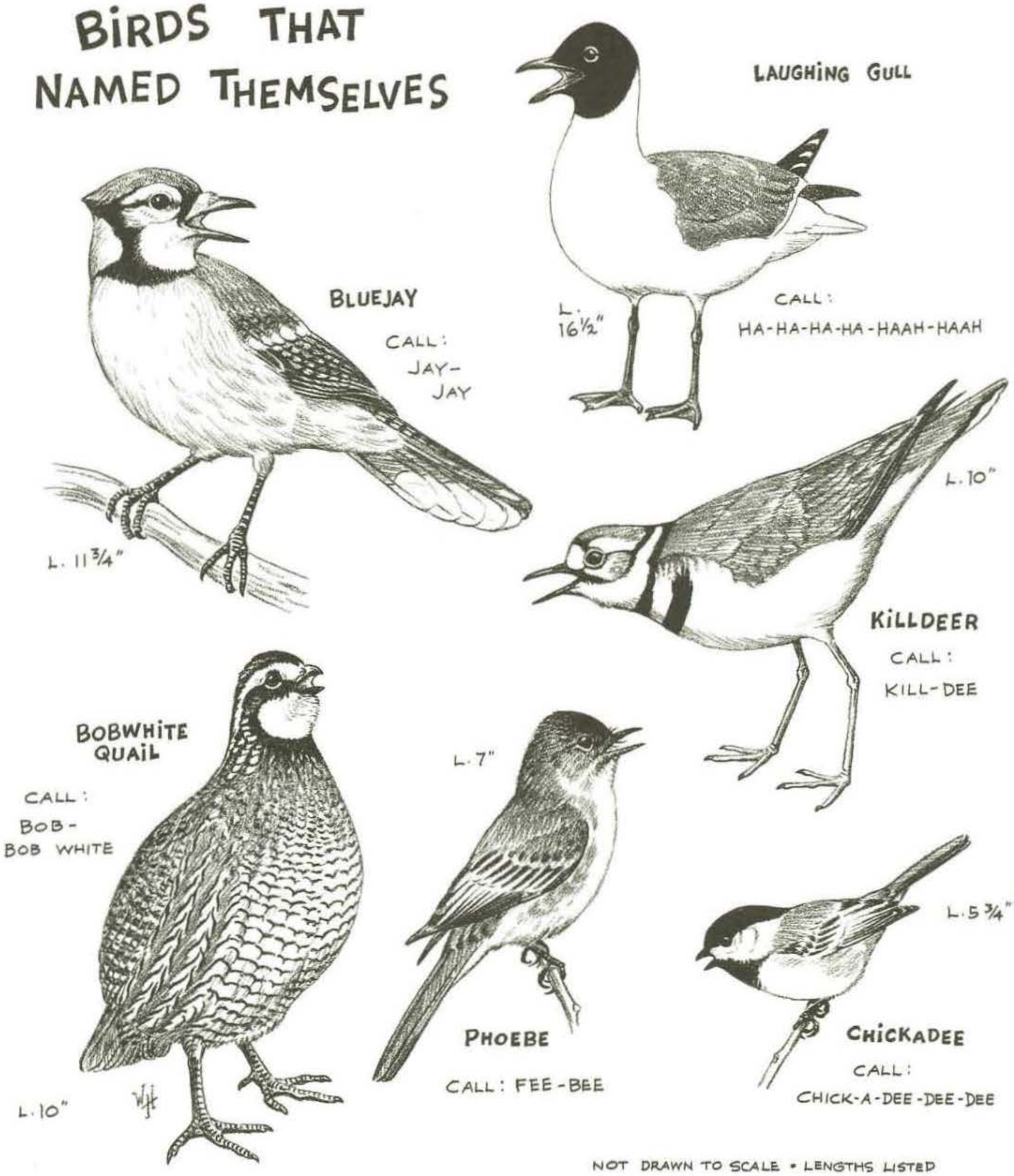

BIRDS THAT NAMED THEMSELVES

NOT DRAWN TO SCALE • LENGTHS LISTED

FLORIDA WILDLIFE SCRAPBOOK • FLORIDA GAME AND FRESH WATER FISH COMMISSION

Florida WILDLIFE

Vol. 28, No. 10

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The Cover

There are 300 or so breeding pairs of Bald Eagles in Florida, according to recent surveys. Not bad, but it could be better. Protection of known nesting sites is important to the future of these magnificent birds. See page 32.

From A Painting By Wallace Hughes

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an up and coming sport—if you don't mind braving the elements

Bowfishing for Carp

DARING ARCHERS WHO DON'T MIND getting chummy with water moccasins in the latter's home territory are gradually developing a new sport on sprawling Lake Seminole on the Florida-Georgia state line.

Particularly during the spring, the 20th century Robin Hoods, many of whom can match the legendary archer in marksmanship, are wading the shallow, snaky-looking waters at the edge of the huge impoundment stalking an elusive underwater target, the unwanted and unloved carp.

Carp eat insect larvae and aquatic plants, and while rooting for food on the bottom, muddy the waters, thus destroying the aquatic plants and damaging the spawning habitat of game fish. The spawning carp definitely interfere with the normal breeding habits of the popular largemouth black bass, and it's no wonder the bass fishermen cuss the carp with muleskinner language.

Because of this, avid bass anglers tip their collective hats to the daring archers for the conservation assist, and in admiration of the nerve of the modern Robin Hoods.

Bowfishing for the unfortunate European import started several years ago as an individual sport among local archers seeking an off-season, live hunting target. Today, it is not only an individual spring sport from April until June, but also has attained tournament status, attracting expert bowmen from Florida, Georgia, Alabama, and other southeastern states.

The sport reached tournament proportions in 1968 when Jack Wingate, operator of Lunker Lodge and Marina, at Hutchinson Ferry Landing, staged the first "carporee"—a 2-day tournament—as a sporting event with fishing conservation benefits.

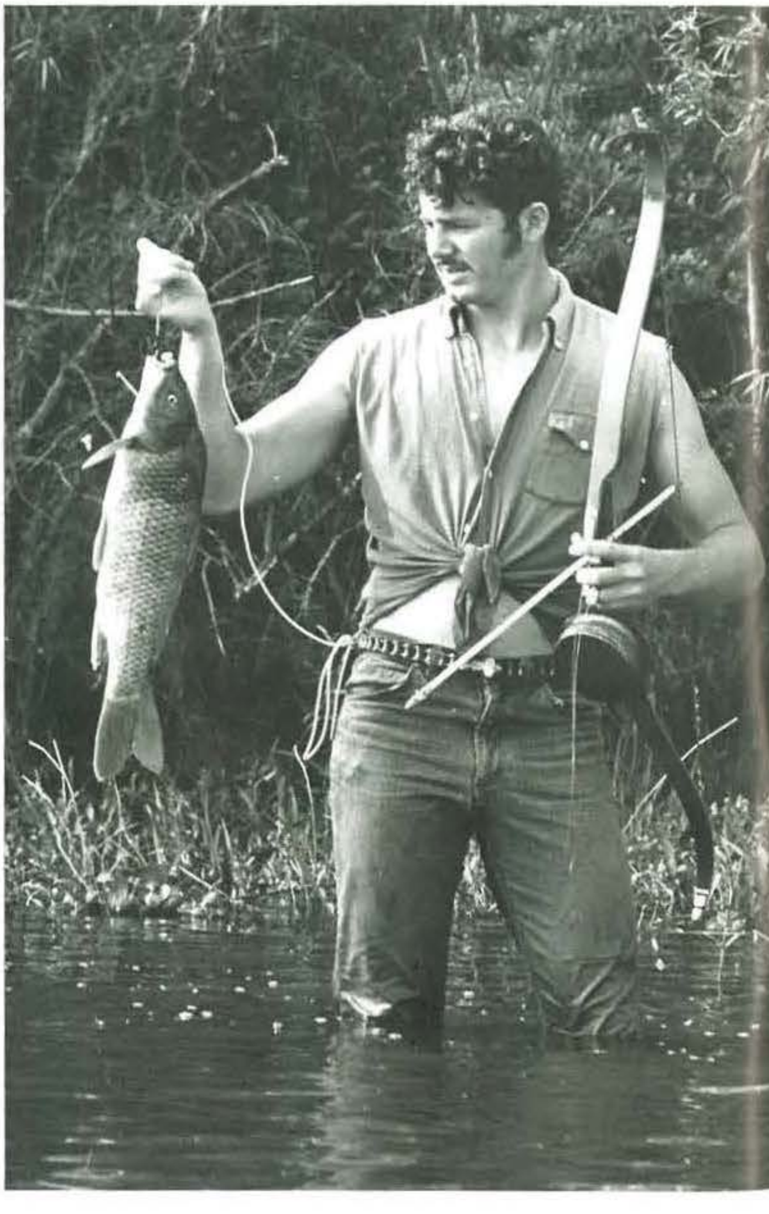
Subsequently, the sponsorship of the annual tournament has been taken over by the Little River Big Buck Club of Moultrie, Georgia, which stages a 2-day shoot in either April or May, depending upon weather conditions. (Details of the 1975 tournament may be obtained by writing Jerry W. Wisham of the Little River Buck Club, 405 Camellia Drive, Moultrie, Georgia 31768).

Florida archers consistently take top honors in the annual tournament. Last year, Burl Creel, of Tallahassee, took first place on a poundage basis, shooting 167½ pounds. Second place in total poundage went to Levy Bryant, of Cottage Hill, Florida, who bagged 122 pounds, 9 ounces. Sixty-five daring archers shot a total of 872 pounds of carp during the 1974 competition!

In the 1973 tournament, which was hampered by an unseasonal cold front, two Tallahassee archers also bagged top honors. Bud Barlowe was first with 33½ pounds to lead the total poundage division, while Jimmy Allen shot the largest carp, one weighing 15½ pounds. Allen also took third in the total poundage division.

Bowhunting for carp developed because of the huge growth of the carp population in 37,500-acre, stump-filled Lake Seminole, an impoundment created by building the Jim Woodruff Dam across Florida's Apalachicola River.

By MAX HUNN



The carp were not stocked in the sprawling lake. They had been residents of the Flint and Chattahoochee rivers, Lake Seminole tributaries, in Georgia, ever since their unfortunate importation from Europe in the late 19th century, another of man's mistakes in tampering with the environment.

Carp were introduced into southeastern waters shortly after being brought to the United States from Germany in 1876 as a food fish. The carp is of Asiatic origin, having been introduced into Europe from China in the 13th century.

Oddly, ol' bottom-grubber is widely cultivated and highly regarded as a food fish in the Old World, but not in the U.S. Although it is now one of the commonest fresh water fishes in North America, the carp is generally regarded as a trash fish.

Flooding of Lake Seminole in the late 1950's created thousands of additional acres of shallow water, ideal for carp spawning and feeding. Fortunately, the black bass population gained, too, but the abundant carp remain very undesirable inhabitants of Seminole's waters.

Jack Wingate, veteran guide and fish camp operator, born within 15 miles of the lake, is very familiar with the unloved carp. He's known them for a long, long time, and he is not one of their boosters.

"I can remember spearing 'em with pitchforks after a high water on the Flint when they tried to return to the main river from flooded ponds," he recalls. "We'd stand in the run-off channels and spear them between our legs. It was no chore to get a wagon load in a few minutes."

In those days, carp were a table fish in south Georgia. They still can be if bled first and carefully prepared to remove the muddy taste resulting from their bottom feeding habits. But seldom are they eaten now.

Later Wingate took to hunting carp in a very primitive manner, using a slingshot and an arrow, not nearly as effective as a modern bow, but certainly sporting. Then he graduated to fiber glass bows, and still hunts the bottom grubbers whenever he gets a chance.

Like other dedicated bass fishermen, Wingate has long felt the prolific carp needs controlling. Carp spawn at the same water temperature as do largemouth black bass, and in the same shallows. However, the carp will seek even shallower waters than the prized bronzebacks. This simultaneous reproduction urge creates problems for the bronzebacks, because the carp disturb the bottom, impeding the bass spawning.

Watching archers wander into his marina to rent boats to reach the bowfishing areas, Wingate decided the sport should be promoted as a means of rough fish control.

"The idea of bowfishing for carp is slowly taking hold," he observes. "When it gains wide spread recognition, bowmen can be a tremendous help in reducing the carp population. It'd be easy to remove thousands of fish by bowfishing if the archers only realized what a challenge it is."

Year by year, Wingate has seen a gradual increase in the number of archers seeking the bugle-nosed fish. "We see a lot of bowhunters using our campgrounds during the spring spawning", he explains. "They come from Tallahassee, as far west as Pensacola, and from all over Georgia. The word's getting around gradually."

(Continued on next page)

Wading archer Dillard Winters of Braxton, Georgia, left, displays carp shot in shallows of Lake Seminole. Stalking skittish carp by boat, below, calls for a slow and easy approach.

Photos By Kit and Max Hunn

(Continued from preceding page)

As he points out, "It's a cheap way for an archer to have a moving target. Everyone can't shoot deer or rabbit, and, of course, the carp spawning season occurs after the regular hunting season. Shooting at a moving carp is good practice for other hunting."

Not only do the carp offer the challenge of a moving target, but also the challenge of locating and stalking them in grassy waters. The big fish root around and spawn in the grass and coontail moss. They're difficult to sight in such cover, although the vegetation may be doing a frantic dance, signalling their presence. This same cover may deflect a well-aimed arrow also. Too, there can be a problem in retrieving the kill from the weedy cover.

Seminole carp hunters divide into two schools of stalking in shallow water. One group prefers slowly moving boats, either poled, paddled, or, in recent years, propelled by an electric trolling motor. However, you have to be extremely quiet when poling or paddling.

Another group prefers wading, probably the most popular method. Wading, however, is not for the faint-hearted, because these waters are also the home of the defiant and poisonous cottonmouth. No archer has been hit by one but there's always a chance of a deadly encounter. But wading bowmen are a nervy bunch. Snakes don't seem to deter them. Despite possible danger, and because of the warm water, most hunters don't use waders, preferring instead old clothes and tennis shoes. Polaroid glasses are particularly useful for sighting the carp, especially the floating Aqua-Mates made by Foster Grant. Glasses that sink aren't exactly useful stalking carp.

The best Seminole bowfishing normally begins with the first quartering moon in April and continues into June. During this period, archers have no problem in locating the quarry. Often, they are seen cruising with their backs out of the water in the extreme shallows, or wallowing during spawning. The love life of carp is a noisy, mudslinging affair. There's nothing secretive about it.

Strangely, after spawning the carp leaves the eggs unprotected. Nature compensates for this don't-care attitude by providing the carp with tremendous reproduction abilities. On the average, a carp produces 150,000 eggs per pound of body weight. A fish in the 20-pound range thus can drop more than 2 million eggs. Even a 10-pounder can produce more than a million. No wonder these undesirables need controlling!

But the carp's noisy concentration upon reproduction does not make them completely unwary. They must be stalked carefully, and veteran carp shooters will agree there's a big difference between locating a fish and hitting one.

Most shots—usually with 45- to 50-pound-pull bows—are made from short distances. Maximum range usually is 20 feet, with shorter ones preferred. Long shots seldom score, because of the tendency of the arrows to glance off the water as the angle of entry decreases.

Also, veteran bowhunters know they must allow for distortion of objects seen underwater. The carp never are exactly where they appear to be. A fish only 2 feet under water when viewed from an angle of 45 degrees appears to be just below the surface. You have to undershoot in order to offset the distortion.

First-time bowhunters will do well to get maps of Lake Seminole for their guidance, as well as all available local information. You can obtain a U.S. Corps of Engineers lake map by writing the Reservoir Manager, P.O. Box 96, Chattahoochee, Florida 32324. Undoubtedly the best map of Lake Seminole is sold by Ol' Guide Publications, Smithville, Tennessee 37166. It goes into great detail concerning fishing areas—vital information when you're planning a carp hunting trip.

Stalking the unloved and unwanted carp on Lake Seminole can be and is a challenging sport to any archer who doesn't mind getting chummy with moccasins. More and more archers are discovering the ol' mud-huggers are there, although not always where they appear to be. ●

Photo By Kit and Max Hunn

J. W. Lawrence, left, and B. B. Rhodes, Jr., are shown with their first day's bag in annual Lake Seminole carp tournament. Rhodes placed third in the final standings.

Lure Trolling Lore

contrary to what one might think, there is more to trolling a lure than simply dragging it through the water

By **CHARLES WATERMAN**

If you think we have some pretty eager contest fishermen around the States, you should study some English tournaments. I am intrigued by what the British do about fishing. They loaded us down with ethics a couple of hundred years ago and some of their trout fishing is as delicate as any in the world. On the other hand we snuck ahead of them in the light tackle business, especially for Atlantic salmon and trout. While ordinary trout and bass rods are used up the Canadian coast for Atlantic salmon, the British still lean toward enormous fly rods flung with both hands. They're skillful with them and sometimes send the Yanks away in awe. Even so, they've come off second best in a few confrontations.

But it's the British fishing contests for "rough fish" that get me wide-eyed. Although U.S. bass contests have some of the elements of boat races, we've never progressed so far (forward or back?) as to deliberately block efforts of the opposition. In merrie olde England that's often part of the game.

The European tournaments have been going on since the last century, and the terms used are as puzzling to me as our bass fishing phrases might be to them. As far as I can learn, nearly all of their contests are held from shore, each fisherman standing at a "peg" with some 60 feet or more separating the competitors. The water the "matchman" is allowed to fish in is called a "swim," which sounds funny until you note that American steelhead fishermen fish on "drifts," American salmon fishermen work "beats," and bass fishermen are always looking for "structures."

So once the signal sounds, the matchmen are likely to use "ground bait" (as good a name as chum). The idea may be to place the ground bait so it will coax the victims away from the neighbor's "swim" and into yours. Just chunking the goop out by hand isn't good enough sometimes, so there are "catapults" for getting your concoction into a chosen area. The catapult is a sort of oversized slingshot. There are also "throwing sticks," "swimfeeders" and "bait droppers." You're not allowed to wade, and you must stay within 3 feet of an imaginary line between your peg and the water.

A disabled competitor may have assistance only on the written authority of the match committee. I assume that means someone with a physical handicap might get permission to have some muscular aid in operating his tackle. When I first noted that rule I thought it meant anybody getting a hook in his ear would have to wait for official sanction before getting treatment, but I think I was wrong.

The contest is judged on the weight of the fisherman's catch, and there are days when he must resort to catching "tiddlers" with a miniature outfit at the water's edge. But not all of the tackle is so dainty. There are times when the competitor will be using a 30-foot "roach pole."

All of this is bait fishing with an assortment of worms and maggots, often done up in balls of cereal. Baits made of fish or parts of fish are prohibited in many contests. Apparently it is not unusual to have a thousand entries, and the championship affairs are the results of elimination meets. According to a book I have been reading, there have been champion matchmen from France, Germany, Holland, Belgium, and Denmark.

Now since some important matches have been won by catches such as 96 roach with a total weight of 2½ pounds, there is some pretty puzzling tackle, including the "swing-tip," which includes a rubber tube holding a light piece of rod hanging outboard of the basic stick. There is also a "butt bite indicator," a kind of miniature rod that branches out from the main pole. If I had the space for diagrams of these things I'd really back you up, but if you want to be a matchman in the Old Country you can buy your own book on the subject. I understand one contestant uses 250 different floats for different circumstances.

Before you decide this is a sort of chickenfeed operation, note that some of these operators have won 2000 pounds in a single top-level competition. Even in these days of inflation, 2000 British pounds sterling is not exactly alfalfa. That's about $5,000 in our language.

Trolling is generally considered a job for fairly heavy outfits, but there are crappie and shad trollers who go to light stuff with a reason other than giving the fish a run for his money.

Saltwater trout pros, who have been called "fivepolers" because they dangled their bait or lures from five cane poles fanned out from the stern, get some special effects with those rigs. As their boat

(*Continued on next page*)

(Continued from preceding page)

moves slowly over the grass flats, the bobbling tips add some extra action to the bait.

Last winter, a fisherman who had never before trolled with tiny jigs for speckled perch told me he was amazed with the efficiency of ordinary cane poles for the job. The reason is that as the boat goes along through gentle waves, the flexible tips move constantly, working the jigs up and down as well as in little spurts of speed and gentle dropbacks. In some cases the lure's action is more efficient than what a fisherman could give it by whipping his rod tip.

In very slow trolling, a long, whippy spinning rod gives special effects, and some of the best shad fishermen used to do it with flyrods and monofilament line. I don't see many flyrods used that way any more, but the lighter spinning gear can give the same end result. The things that make a fish take a shad spoon or dart (small jig) are subtle, for it's one kind of fishing in which one rod does all the catching while another that seems to be rigged exactly the same draws a blank. Probably the tip action is something that doesn't meet the eye, although I like to blame the supernatural.

The sport of "noodling," as carried on in some catfishy rivers where it's legal, can be a little mysterious. When I was a kid I never had a yearning to stick my arm into a submerged hollow log, but I'd seen some big catches made by fellows who were good at it. Their system, they explain, is to reach into a logical place for a catfish or other nonviolent fish, find a dozing specimen, and feel around him until they got a good hold and then yank him out. If the fish was too big for that, they might string him up with a piece of rope. Don't ask me for details, because I haven't been there. But I am intrigued by the process of "tickling," in which you gently massage a fish's tummy until he begins to like it, then grab him where the grabbing is best.

Shad trolling is a good place for soft-tipped rods. They're inclined to give the lure some extra action.

I'd always thought tickling worked only with fish that didn't get their brains into gear very fast, but freshwater trout tickling is an ancient method. Since a trout of any species can move mighty fast, I'd think it would be pretty hard to manage. The practitioners used to claim that the rubdown "hypnotized" the fish. Maybe it does. In murky water it's possible a snoozing catfish thinks the investigative paw is simply an associate crowding him a little—but that's hard to believe when we go into the catfish's acute sense of smell. And in clear water I'd assume a trout could not only see your hand but read the trademark on your waders. Scuba fishermen probably have plenty of experiences to bear out one theory or another, but I can't recall reading much on the subject. My own research is stymied by reluctance to insert my pinky into any underwater sector I can't see plainly.

BAITCASTING RODS HAVE GONE THROUGH so many changes in length and action in the last couple of hundred years that I wonder if the stiff worming rod is really the final word. About a hundred years ago there was a baitcasting rod made for throwing minnows and known as the "Henshall rod." Dr. Henshall, you may recall, was one of the first real black bass authorities. When he came up with his rod, which was only a bit more than 8 feet long, it took the place of the 10-footers that had accompanied the Kentucky multiplying reel for some 75 years. Those old 10-footers were generally native cane and were a lot lighter than the Henshall models, most of which had stiff butt sections of something like ash and employed tips of lancewood or maybe split bamboo in later editions.

The Henshall rod, used almost entirely with bait, was followed by the "Chicago rod," which ran a little more than 6 feet and was the true beginning of modern plugging rods. Shortly after the Chicago rod went into production, the artificial lure became popular. It's a mystery why it was so long in coming, since we had everything needed to cast it, the Kentucky multiplying reel having been built very early in the 1800's.

Anyway, the present baitcasting or plugging rod of 5 to 6½ feet used to be considered too long in some parts of the country. When I was a kid there was a fad of 3-foot hollow steel rods in places where fishermen floated the southern mountain rivers. They'd cast all right, although not quite as neatly as something a bit longer.

One Ozark river guide told me the shorty was made to accommodate the guide who ran a johnboat with a paddle and liked something he could lay down anywhere between casts. That's as good a reason as any, but I had to have one of those stubby ones because I saw the guides using them. I made mine by leaving off the butt section of my hollow steel rod and sticking in what they called

Float-on trailer is slick transportation but sometimes has disadvantages on bad ramps and in the salt water.

a "rod shortener," that made it possible to seat the second joint in the rod handle.

Before the baitcasting rod was trimmed down to a slimmer silhouette they used to store the tip sections in a hollow butt. They sometimes put cans of oil in there for use on reel or ferrules, and even a spike in case you wanted to leave your rod mounted on the bank with the bait in the water. The hollow butt with tip sections inside was sometimes camouflaged as a walking cane in case a fisherman didn't want his objective known as he walked past churchgoers on Sunday morning.

FLOAT-ON TRAILERS DON'T quite suit me. The idea, of course, is to sink the trailer and let the boat float off, then drive the boat back on when you're ready to go. In fresh water on good ramps it is the slickest thing since hot dogs. In salt water with bad ramps you can have it.

I have a pretty heavy bass boat on a galvanized float-on trailer. Not too many bass boat trailers are galvanized, and up in Middle America where they build so many, they're very rare. Now my bass boat trailer doesn't tilt. It pulls like a dream, and it's low-slung enough that you don't need a ladder to see if you left your tackle in it. I have "bearing buddies" on it. Those are the greasegun attachments that allow you to stick some more grease in at intervals without taking off the caps. They also act to keep water from being sucked in when the hubs are hot before being soaked. No beef.

But I thought by using a little muscle I could launch the boat without the tilt frame when the launching site was a little spooky or when I was going into salt water. Sometimes I can, but on other occasions the rollers just won't turn for me unless the ramp is mighty steep. There have been several times when I wanted to put the thing into fresh water when I didn't want to back up to the water's edge because of mud or a carpet of slippery hyacinths. My car can't swim. I needed a tilt there too.

I think dunking in salt water is bad news for trailers, even galvanized ones. I have a fearful respect for salt water. The other side is that you only spend so much for a trailer and if it doesn't last forever, well, neither will you.

THE BLACK BASS IS UNDOUBTEDLY more plentiful now than before the Pilgrims came over here with the Mayflower full of fishing tackle. Part of that is due to the impoundments, but before that the fish were multiplying through extensive plantings that put them in all of the states except Alaska. To begin with, the black basses had pretty limited range, although they've been in Florida since goodness knows when. The first settlers found them, of course.

It was the railroads that really put the black bass show on the road. Many of the plantings were promotional stunts by the railroads, which would introduce bass and then advertise where the fish were. That got them a lot of business and the railroads were promoting fishing and hunting country before the resort hotels really got into the act.

Bass hatcheries now have pretty limited use because any place a bass can make a living there is likely to be as many as the water will support. Supplementing a natural population is likely to be a waste of fish and energy, and plantings are useful only as primary introductions or to help out when unusual conditions have wiped out the resident fish. Time was when plantings of any kind of fish could be a sort of political favor. That's what gave the European carp a good start in much of this country. Not many of them in Florida.

THERE IS A COURT CASE INVOLVING FRAUD in a Florida bass fishing contest. The accusation was that promoters of the tournament fixed it by allowing entries to keep pre-caught fish in tanks and show up with them at the weigh-in. Regardless of the merits of that particular case, there's no doubt there will be some trickery when fishing tournaments involve the kind of dough they're fetching these days.

Those who bend the rules may figure it's all good, clean fun like a baseball pitcher who plants vaseline in various spots and supplies it when needed. But both the pitcher and the contest fisherman are dealing in money, and there's a fine distinction between a harmless prank and thievery. There are times when the laws of the land are involved.

But in most cases I feel the contest fishermen should handle their own problems. I have visited fishing contests where the National Guard was used for rule enforcement. Unless things are really rough, I think the rule making and the rule enforcement should be up to the people participating. Generally they are.

I think it'll get very complicated if state or local law enforcement agencies get into it. Like the FBI backing up basketball referees. ●

Meet Your Commissioner

Appointment of Dr. Donald G. Rhodes to the Game and Fresh Water Fish Commission was announced in December by Governor Reubin Askew.

Rhodes, 41, of Satellite Beach, Brevard County, was named to succeed O. L. "Sonny" Peacock, Jr., of Fort Pierce, who resigned in November.

A native of Windsor, North Carolina, he attended both grammar school and high school in Windsor. He received his Bachelor of Arts degree from East Carolina University in Greenville, in 1955, and a D.D.S. from the University of North Carolina Dental School in 1959. He practiced dentistry in the U.S. Air Force from 1959 to 1961.

Rhodes is active in community service organizations—Lion's Club, Kiwanis International, and Rotary Club of Melbourne—and sportsmen's groups, including the National Rifle Association and Ducks Unlimited.

Professional groups in which he holds membership include the American Dental Association, Florida Dental Association, Central District Dental Society, and the Brevard County Dental Society. He is a past president of the Brevard County society, and has been an F.D.A. delegate for the past three years.

Dr. Donald G. Rhodes

Mrs. Rhodes is the former Dianne McKee, of Melbourne. The family includes two children, Shannon, 5, and Chad, 3.

Dr. Rhodes' hobbies include raising pointer bird dogs, hunting, fishing, golf, and tennis.

On the occasion of his appointment to the Commission, the new Commissioner stated, "Hunting and fishing have given me much pleasure over the years, and it will be my profound desire to help in any way that I can to see that these great natural resources are maintained for generations to come. I realize that this appointment carries great responsibility, and I pledge to contribute my efforts in an honest and sincere manner as I strive to fulfill the trust the Governor placed in me with the appointment." ●

National Wildlife Week

March 16-22

"We care about wildlife habitat" will be the theme for the 38th annual National Wildlife Week.

More than 7,000,000 students, teachers, and members of state and local organizations will participate in the nationwide, week-long observance from March 16 to 22, according to Thomas L. Kimball, executive vice president of the National Wildlife Federation, the 3.5 million-member conservation organization that sponsors the event with its state affiliates each year.

"This year's theme focuses on the vital relationship between wildlife and its habitat," said Kimball. "All of us who are concerned about the future of wildlife in this country must spread the word that protection of habitat is the key to healthy, abundant wildlife populations. Many wildlife habitats are now trampled by the march of unplanned growth and development."

Habitat, Kimball explained, is not just the place where an animal lives. It includes all the things an animal needs to continue living. "The four basic requirements of habitat are food, water, cover for protection, and a place to raise young," he said.

The 1975 National Wildlife Week poster shows a healthy blacktail deer (back cover) standing in an ideal wooded setting, symbolizing the fact that wildlife cannot live without adequate habitat.

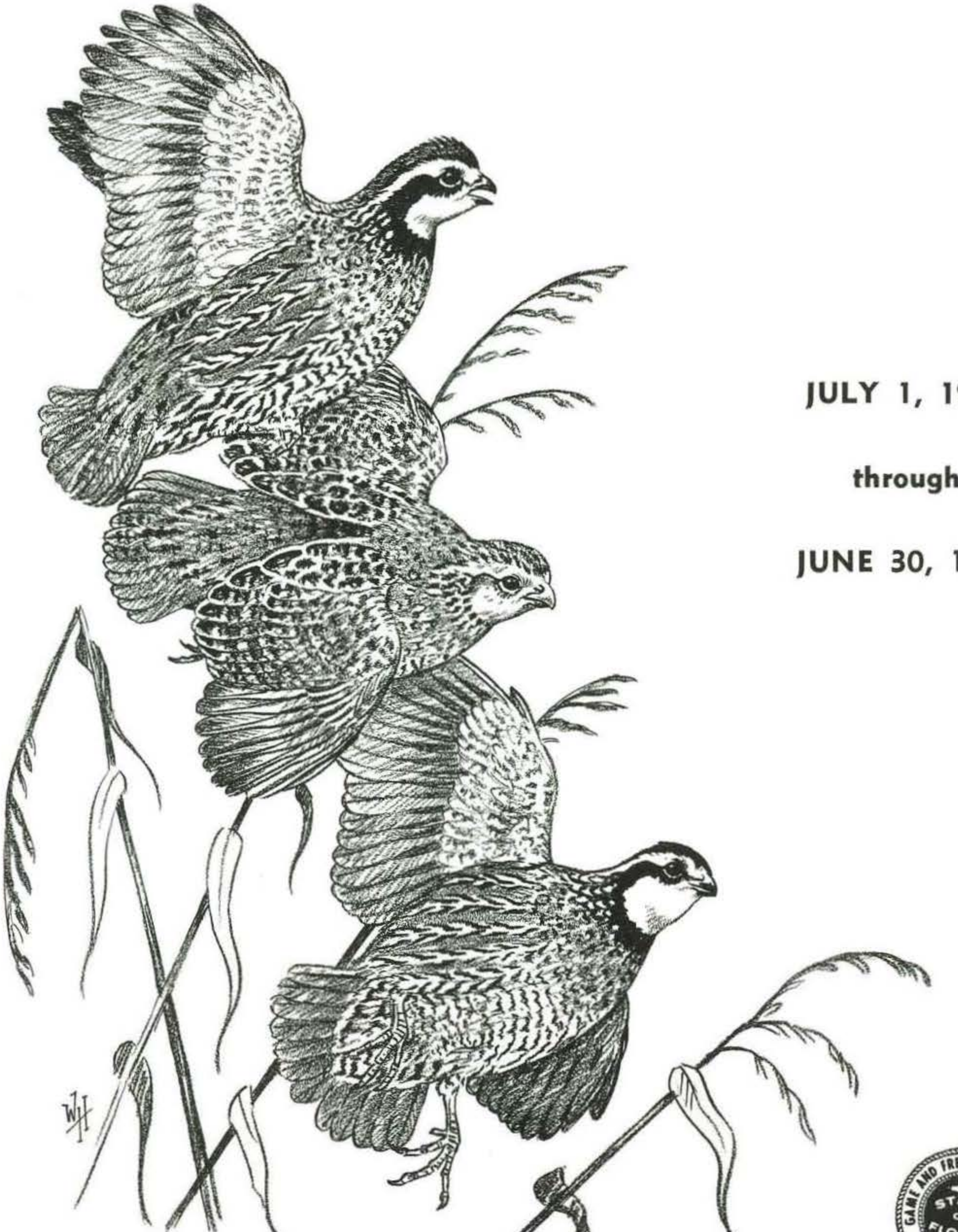
"This year's observance is going to be one of the most exciting in the long history of this event," said Kimball. "There are many things all of us can do to improve habitat right where we live. It's amazing, for example, how a few new plantings in a backyard can pay dividends for wildlife and people. But Wildlife Week has an even larger goal," Kimball noted. "We all have to raise our level of consciousness and be concerned about the broad habitat problems facing wildlife. It is not going to be easy, and it is going to take careful planning of our use of land. To have a good life for wildlife and people, we have to preserve wetlands, woodlands, and wilderness areas. We have to take care of our rivers and oceans. We have to work to save our open spaces and fields and prairies.

"I am optimistic. I think it can be done, if all America gets behind the effort."

President Franklin D. Roosevelt proclaimed the first National Wildlife Week, which the National Wildlife Federation sponsored in 1938. In that first observance, the emphasis was also on the preservation of wildlife habitat.

Florida Game and Fresh Water Fish Commission

ANNUAL REPORT



JULY 1, 1973

through

JUNE 30, 1974

Financial Statement

July 1, 1973 through June 30, 1974

Statement Of Cash Receipts

Sport Fishing:		2,524,059.00
AK Fishing	178,176.25	
Fishing	2,345,882.75	
Sport Hunting:		2,624,762.25
AK Hunting	453,544.00	
Hunting	1,151,351.75	
U. S. Permits	3,960.00	
State Hunting Permits	684,180.00	
Miscellaneous Permits	331,726.50	
Commercial Fishing:		51,557.00
Retail Fish Dealer	30,960.00	
Non-Resident Retail Fish Dealer	100.00	
Resident Wholesale Fish Dealer	18,700.00	
Non-Resident Wholesale Fish Dealer	1,000.00	
Duplicate Commercial Licenses	14.00	
Fish Pond Licenses	783.00	
Commercial Hunting:		14,461.00
Trapping	1,181.00	
Hunting Preserve	1,850.00	
Guide	400.00	
Game Farm	1,920.00	
Wholesale Fur Dealers & Agents	570.00	
Local Fur Dealers	110.00	
License to Exhibit Poisonous or Venomous Reptiles	315.00	
Field Trial Rentals	250.00	
Wildlife Exhibit or Sale Permit	7,865.00	
Miscellaneous:		1,376,231.46
Court Costs	2,204.45	
Miscellaneous Receipts	57,819.01	
Previous Years Licenses Collected	51,884.50	
Magazine Subscription	46,831.77	
Magazine Single Copies	286.65	
Sale Old Equipment	10,826.60	
Confiscated Material & Equipment	988.11	
Concession Revenue	10,169.62	
Manatee County Reservoir Revenue	10,785.00	
Sale Right-of-Way-Webb Area	126,450.00	
Investment Earnings	485.75	
I.P.A. Grant	12,500.00	
Fund Transfer-Hyacinth	889,536.00	
Fund Transfer-Building Trust	155,464.00	
Federal Government:		1,090,297.88
Federal Aid Hyacinth Control	71,365.90	
Dingell-Johnson	355,653.50	
Pittman-Robertson	663,278.48	
Leases:		47,803.30
Webb Area Grazing Lease	30,299.21	
Palm Beach County Lease	10,000.00	
Stump Lease	7,404.09	
Miscellaneous	100.00	
General Revenue:		1,301,475.00
TOTAL REVENUE		$9,030,916.89

Disbursements by Departments

Administration and Support Services		
Salary	$ 484,486.00	
Other Personal Services	10,621.00	
General Expenses	672,659.00	
Operating Capital Outlay	1,076.00	
Debt Service	135,000.00	
Data Processing	50,610.00	
		$1,354,452.00
Law Enforcement		
Salary	$2,408,228.00	
Other Personal Services	4,131.00	
General Expenses	642,205.00	
Operating Capital Outlay	238,552.00	
Data Processing	4,271.00	
		$3,297,387.00
Fish Management		
Salary	$ 799,252.00	
Other Personal Services	4,063.00	
General Expenses	406,232.00	
Operating Capital Outlay	98,136.00	
		$1,308,057.00
Wildlife Management		
Salary	$ 592,580.00	
Other Personal Services	18,235.00	
General Expenses	431,057.00	
Operating Capital Outlay	134,783.00	
Data Processing	1,682.00	
		$1,228,337.00
Information and Education		
Salary	$271,033.00	
Other Personal Services	7,808.00	
General Expenses	199,328.00	
Operating Capital Outlay	2,020.00	
Data Processing	8,565.00	
		$ 488,754.00
Aquatic Weed Control		
Salary	$ 520,330.00	
Other Personal Services	9,081.00	
General Expenses	347,774.00	
Operating Capital Outlay	32,277.00	
		$ 909,462.00
Ecological Systems		
Salary	$ 90,809.00	
Other Personal Services	1,919.00	
General Expenses	15,632.00	
Operating Capital Outlay	17,940.00	
		$126,300.00
Recreation Opportunities		
Salary	$ 67,055.00	
Other Personal Services	2,800.00	
General Expenses	22,205.00	
Operating Capital Outlay	42,246.00	
		$ 134,306.00
TOTAL		$8,847,055.00

Disbursements By Budget Category

Salary	$ 5,233.773.00	
Other Personal Services	108,658.00	
General Expenses	2,737.092.00	
Operating Capital Outlay	567,030.00	
Data Processing	65,502.00	
Debt Service	135,000.00	
TOTAL		$8,847,055.00

Disbursements By Fund Source

General Revenue	$1,295,756.00	
Trust Funds	7,551,299.00	
TOTAL		$8,847,055.00

Administration

FOR THE PAST THIRTY-ONE YEARS since the Game and Fresh Water Fish Commission became a constitutional agency, the Commission has carried out its programs with revenue derived from the sale of hunting and fishing licenses. During the early years of the Commission this was appropriate, as the programs of the agency were primarily directed to benefit hunters and fishermen. However, over the years, particularly during the past decade, the Commission has become increasingly involved in matters affecting and benefiting not only the hunter and fisherman but the general citizenry: protection, research and management of nongame species of wildlife; boating safety, civil emergencies and other general police actions; environmental protection encompassing water quality, pollution control, and ecological systems; and development of a recreational program for the Everglades.

Realizing that these activities benefited the general public rather than exclusively hunters and fishermen, the 1973 Legislature appropriated $2,036,737 in general revenue funds to assist in the Commission's overall program. These funds have been put to good use, as can be ascertained by a review of the various programs and accomplishments set forth in this report.

In general, the Commission accelerated its management of the state's wildlife and fresh water fisheries resources to insure optimum wildlife and fish populations for the recreational and aesthetic benefit of the public. Such management encompassed the promulgation of codes and regulations for the protection of the resource; enforcement of these codes and regulations and those provided by Florida's statutes; habitat improvement; research directed toward solving resource problems; regulation and inspection of wildlife importation; regulation and inspection of wildlife exhibitors; control of aquatic vegetation; biological inspection and reporting of construction and development projects which could affect fish and wildlife resources and their habitat; acquisition and development of public recreation areas; and a conservation information and education program. Next year there may be a change in our status because of a forthcoming constitutional referendum. However, we favor these changes as expressed in the following position statement which was adopted at the March 8, 1974 meeting in Panama City:

> The Game and Fresh Water Fish Commission cherishes and strongly supports its constitutional autonomy because of its traditional and well demonstrated role of leadership in the protection and management of Florida's wildlife and natural environment. It nevertheless recognizes the propriety of its adherence as a state agency to the fundamental and appropriately ever-changing operational policies and procedures of the State of Florida. Therefore, the Commission has sponsored, and strongly and enthusiastically supports, the constitutional amendment relative to its status which will be voted upon in the general election of 1974. This amendment maintains the basic constitutional authority of the Commission to manage and regulate the fish and wildlife resources of Florida while providing the following:
>
> 1. The members of the Commission appointed by the Governor shall be confirmed by the Senate.
> 2. The Commission shall operate by state law in the areas of planning, budgeting, purchasing, and personnel management.
> 3. Hunting and fishing license revenue shall be used only for protection, management, and conservation of wild animal life and fresh water aquatic life.
> 4. The Legislature may enact laws in aid of the Commission not inconsistent with the constitutional authority of the Commission.
> 5. The authority of the Commission is more specifically denoted by defining its powers as "regulatory and executive" rather than "non-judicial."

Finally, the next fiscal year appears even brighter in view of the 1974 Legislature appropriating $5,196,711 in general revenue funds to carry out the expanded responsibilities of the Commission. One item approved was funding of a 24-hour radio system which has been sorely needed for many years. Many other programs will be upgraded and expanded. The Commission appreciates the support of the Legislature, the sportsmen, and other outdoor-oriented citizens of the state, and intends to justify that support.

Administrative Services

DURING THIS YEAR PRELIMINARY PLANS were started to organize the Administrative Services for the Commission. Several meetings were held with the Division of Budget, Division of Personnel, and the Bureau of Management Improvement. The results of these meetings led to a legislative request for approval of the Administrative reorganization and the necessary positions to implement the proposed changes. This was approved for implementation for 1974-75 fiscal year. The various sections spent the remainder of the year carrying on normal business, and began plans to carry out the future reorganization.

In July, 1973, the Legislature authorized a pay increase for all state-employed law enforcement officers and for other employees below pay grade 24. The Personnel Office was responsible for making these changes in the salaries of all Game and Fish Commission employees affected by the act. A total of 242 new employees were added to the Commission's payroll, and 125 employees were terminated during the fiscal year. Commission identification cards were prepared and distributed to all Commission employees, OPS employees were hired for hunting season, personnel records were converted to computer, and interviews for prospective field employees were held periodically throughout the year. Annual revisions to the code book were made, and approximately 50 orders were processed, including fish and game management area regulations and resident game seasons. Reports were submitted to the Equal Employment Opportunities Commission.

During this report period, the Training Section conducted Supervisory Training Schools, which began in April and were completed in August. Also conducted were an Orientation School, June 3-8; an 80-hour Auxiliary School, July 9-13; the final phase of Basic Recruit School #5, September 4-28; and phase one of Basic Recruit School #6, October 1-12. The second through the fifth phases were commenced in January and completed in June of 1974.

During this period, all Auxiliary officers were re-registered with the Police Standards Board, progress reports on Equal Employment Opportunity efforts were made to the Equal Employment Opportunity Commission, and a final report was made on the Intergovernmental Personnel Act grant. Annual promotional examinations were prepared and administered to Commission law enforcement employees during the month of May.

A major accomplishment was realized when the Police Standards Board Curriculum Revision Committee mandated that two hours of the required Police Standards training be devoted to environmental-oriented law enforcement.

The production of 12 issues of FLORIDA WILDLIFE Magazine and the annual package of hunting and fishing regulations summaries and related materials, plus an unusually heavy amount of special printing, presented a year-long challenge to the six-member Publications Section in 1973-74.

Besides the normal load of summer and fall work, the Section produced a considerable amount of printing in connection with the International Association of Game, Fish and Conservation Commissioners' annual meeting, held in Florida in September 1973. Other major demands on the staff included production and delivery of one technical bulletin (No. 6, "Fish Attractors") and the 200-page Everglades Five-Year Recreation Plan book. The Section also processed a score of general service-type printing jobs, and was nearing the end of its work on technical bulletin No. 7 ("Largemouth Bass") when the year ended.

Ill health forced the retirement of the section supervisor and long-time editor of FLORIDA WILDLIFE, Bill Hansen, in March 1974.

Commission Membership

1973-74

J. B. WINDHAM, Jacksonville	**Appointed January 22, 1969** **Term expired January 5, 1974**
O. L. PEACOCK, JR., Ft. Pierce	**Appointed January 5, 1971**
HOWARD ODOM, Marianna	**Appointed January 10, 1972**
RANDOLPH R. THOMAS, Jacksonville	**Appointed January 5, 1974**
OGDEN M. PHIPPS, Miami	**Appointed January 18, 1973**
E. P. BURNETT, Tampa	**Appointed January 17, 1973**

Communications

THE COMMUNICATIONS SECTION had relatively routine activities during the 1973-74 fiscal year with the following highlights:

There were 631 repairs performed on the 440 mobile radios employed in Commission vehicles. This included modification of 55 Motorola radios delivered the previous year to meet the demanding requirements of the radio system, which has to provide communications to personnel in very remote areas. Delivery was also made on 52 General Electric radios in March 1974. These were purchased to equip new personnel and replace those radios damaged beyond repair.

There were 375 repairs performed on the base and repeater radios, of which there are 76. Much of this repair was due to damage by lightning, which seems to have a peculiar appetite for Commission equipment.

Communications personnel installed 14 base station radios. This number includes the relocation of certain existing stations to improve system performance.

Other activities of the communications officers included the inspection of all new automotive equipment purchased by the Commission, assistance with the installation of emergency equipment used in law enforcement vehicles, and the supervision of operator personnel.

Communications personnel traveled 120,473 miles in the performance of their duties. Five regional communication officers, 14 radio dispatchers, and a section chief were utilized, with a total operating budget of $216,015.00.

Recording data, left, on catch made in fish sampling effort. Information keeps specialists informed on status of local fish populations. Fisheries workers, at right, lower baled hay into lake, to encourage growth of aquatic organisms on which fish feed. Tests showed increase in the growth rate of fish in the treated waters and at less cost than if a chemical fertilization had been used.

Photo By Art Runnels

Fish Management

FISCAL 1973-1974 MARKED A YEAR when fish management biologists were relieved of most of the environmental inspections and comments that had previously taken a considerable amount of time. They are now able to put their full effort into producing more fish for the fisherman's creel.

The Everglades regional personnel, plagued by an ever-increasing number of exotic species, took many samples in canals and lakes.

Low water levels in the Conservation Areas brought most fish to the canals, and limit strings were common. Spring and summer rains returned water to the area, allowing brood fish to once again move out in the marsh and spawn.

DeSoto Fish Management Reservoir was opened by fisheries personnel from the South Florida Region. This particular area has proven to be a problem child, as aquatic weeds, water levels, and fish populations have caused much concern.

Samples from Lake Thonotosassa show the fishery to be much improved from 1969, when the largest fish kill in the U.S. occurred there. As usual when a population suffers a die-off, the reproduction is more successful, and the area quickly repopulated. Indications point to an improvement in the water quality.

Haul seine efforts in Lake Parker removed 240 pounds per acre of shad and tilapia. Samples show that bass were successful in spawning, and while one may not be related to the other, follow-up studies should reveal whether the competition was responsible for the low survival of bass fry.

Fish attractors placed in Lake Juliana have increased the catch per unit of effort, according to a voluntary creel system. Attractors were constructed from brush, old tires, and pieces of waste PVC pipe.

Fish kills from various causes continue around the state, but none have been as large as the one on the Peace River two years ago. That famous case is still awaiting settlement.

The Central Region staff, in addition to sampling and making management recommendations, attempted to spawn the chain pickerel. Water quality problems prevented success and caused a die-off in brood stock.

Subadult bass released in Suwannee Lake by Northeast Region personnel were marked with several colors of fluorescent die embedded under the scales. Samples were

Photo By Bill Lynn

taken at regular intervals, and by fall only 6% survival of the stocked fish was indicated. Apparently, fish stocked into established populations suffer extremely high predation.

Bear Lake, in the Northwest Region, had produced good catches of bass, bream, and channel catfish for a number of years until it was drained several years ago. When it was refilled and restocked, fishery personnel decided to fertilize the lake with hay. Twenty tons were applied over a 6-month period, which produced an abundant crop of the little aquatic organisms upon which fish feed. Improved growth rates of the fish, and the rising costs of commercial fertilizers, indicate that more north Florida lakes may receive applications of hay.

Regional management personnel routinely sampled many lakes, streams, and rivers in a continuing effort to monitor the fish populations and to make recommendations to improve them.

Considerable time was devoted to assisting pond and lake owners with various fish management problems. While these are generally private bodies of water, they do relieve the public areas of a great deal of fishing pressure.

Fisheries research provides the tools for the management biologist, and so, scattered over much of the state, research biologists and specialists are probing into the everyday lives of fishes.

LAKE OKEECHOBEE—The black crappie is very underfished, and it will take a significant increase in the harvest before we can look for an increase in size. Bass under 14 inches in size could stand a fishing pressure two to three times greater, while those over 14 inches long are being overfished. This is probably true all over Florida.

A long look was taken at the Suwannee Bass, a rare redeye species found in the Suwannee, Santa Fe, and Ochlockonee rivers. Stomach analysis revealed 77.4% of the diet to be crayfish. Spawning takes place between December and March. Indications are that while the species is rare, populations are stable and, barring a great habitat change, are in no danger.

SNOOK AND FLATHEAD CATFISH—Large predator species are desirable for several reasons. They are a challenge to catch, and they assist in controlling overpopulated bream and shad. For these reasons new species are being tried to fill these niches.

The flathead catfish is supposedly one of the most predaceous of the catfish family. This fish was stocked in a lake overpopulated with bluegill, and studies are progressing to determine whether or not it significantly reduces the bream population.

The snook is a well-known predator in salt water, and has the unique ability to adapt to fresh water. For the first time, biologists of the Game and Fresh Water Fish Commission were able to spawn the snook, and while there will undoubtedly be problems, a project has been established to investigate the stocking of this fish in inland waters.

Another first was scored when Florida was the first state to successfully spawn the hybrid obtained by crossing the female white bass with the male striped bass. Several thousand of this unique hybrid were released in Florida lakes.

The striped bass program was continued, with the release of around a million fingerlings in selected areas of the state. Since the striper is selective to feeding only on soft-rayed fishes (shad), they have only been released in waters that contain shad. It is hoped that hybrids (crosses between white bass and striped bass) will feed on the spiny-rayed fishes (bluegill, shellcracker, etc.) and can be stocked in a number of lakes.

The non-native fish laboratory was completed in Boca Raton and studies begun on some of the more troublesome species. Biologists have determined that 45 exotic fish species are now established with reproducing populations in Florida waters. The black acara and walking catfish are competing with largemouth bass.

STREAM INVESTIGATIONS—There has been a continued reduction of the St. Johns River marsh as development interests drain the area. The study team has recommended that waters diverted from the St. Johns River

(Continued on next page)

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be returned to the marsh, and that major north-south canals be plugged.

Water quality in the Apalachicola River apparently has improved, as the latest chemical analyses indicate. It is recommended that an interstate study be initiated to look into the many and varied problems facing this body of water.

LAKE TOHOPEKALIGA—Three years after the drawdown, benefits are still available to fishermen as the increased sport fishery yields good catches. Some of the benefits were short-lived, as the major cause of the nutrient flow (municipal sewage) has not been stopped. In fact, predictions are that it will double. Although most of the vegetation is beneficial, water hyacinth is not. Great mats of hyacinths shade out the desirable emergent vegetation, leaving the area ripe for invasion by troublesome submerged plants.

BASS TOURNAMENTS—Since bass tournaments were first begun, fishermen have wondered to what extent fishing has been affected. One tournament held on the St. Johns River was monitored to determine catch and mortality, as all fish caught were released. In three days of fishing, 200 fishermen caught 1,165 bass over 12 inches in length. Of those fish caught, roughly ¼ died within 30 days and 875 lived to be caught again.

LAKE TALQUIN—Project biologists say Lake Talquin is underfished and could stand two to three times the pressure it now receives. Striped bass are being caught regularly, and recommendations are that no more be stocked until it can be determined whether the fish will successfully spawn in the watershed. Investigators found water samples to contain high levels of nitrogenous wastes but low levels of chlorinated hydrocarbons.

LAKE JACKSON—One blow after another has fallen on Lake Jackson, and still it ranks as the "big bass" lake.

It has experienced crippling turbidities, is grossly contaminated with heavy metals in the run-off, and is burdened with breaks in sewage treatment lines. Help is slow in coming, and biologists are offered their first opportunity to study a lake in early eutrophication—which means it is dying.

LARGEMOUTH BASS INVESTIGATIONS—Can bass grow faster, live longer, and bite better? That is the purpose of this study to determine if by selective breeding we can develop a bass that practically jumps in the boat. So far, some populations do grow faster than others, females grow faster than males, and, to complicate the study, 18% of the fish lose their tags in 5 months. Populations from Lake Seminole and Lake Dora are the most catchable, more fish are caught in the morning, and bottom type lures get the most strikes.

LAKE IAMONIA—Plans for a water manipulation structure on this body of water proceeded, as investigations revealed a very low fisherman utilization. The standing crop of fishes in this relatively sterile body of water was determined to be 50 pounds per acre.

OKLAWAHA RIVER BASIN—Samples showed the presence of tilapia for the first time, and environmental conditions favor the shad and catfish, not a very bright picture for this troubled chain of lakes. However, a new project is beginning to examine the problems, and, hopefully, fishing will increase.

Aquatic Weed Control

IN 1952, THE GAME AND FRESH WATER FISH COMMISSION recognized that aquatic weeds caused problems for the fishermen and boaters in Florida. The Commission further recognized that the control or management of aquatic plants or weeds were an integral part of fresh water fish management. They implemented a program to develop control techniques and established a control program.

The Aquatic Weed Control Section is divided into three general areas: field operations, permitting, and research. The operations branch operates from a statewide headquarters in Lakeland which coordinates state operations through five supervisors located throughout the state. These supervisors also coordinate state operations with federal and local programs to avoid duplication. The permit section is composed of six aquatic botanists whose primary responsibility is the permitting of aquatic weed control operations under the guidelines established by the Department of Natural Resources. The research group provides research capability for the control programs as they relate to fresh water fisheries in the areas of biological, chemical, environmental, and mechanical control.

The Commission's Aquatic Weed Control operational section increased the number of field crews from nine, and one spray plane, to 19 field crews, two additional area field supervisors, and the spray plane crew, since additional funding was received from the Department of Natural Resources in 1971-72 fiscal year.

The field equipment, which had consisted primarily of wooden-hulled airboats, was replaced with up-to-date aluminum, heavy duty airboats. The smaller 5 gallon/minute spray pumps were replaced with 10 gallon/minute spray pumps, and all required safety equipment was purchased in accordance with U. S. Corps of Engineers and Commission rules and regulations.

The 19 spray crews, each consisting of an airboat manned by a crew chief and a deck hand, are strategically located around the state in an effort to keep the crews near their assigned work areas, thereby reducing travel time as much as possible.

The Piper PA 36-A spray plane, stationed in Lakeland, was placed in service during the 1973-74 FY to replace the Piper PA 25 which was lost while conducting spraying operations near Ft. Pierce during the summer of 1972.

The spray crews and the aircraft treated a total of 43,192 acres of noxious vegetation in 501 bodies of water during the 1973-74 FY.

The Commission, in order to provide the public with technical assistance regarding aquatic weed control activities, has employed six aquatic botanists, located in DeFuniak Springs, Lake City, Orlando, Lakeland, Boca Raton, and Ft. Lauderdale.

The aquatic botanists are required to have knowledge of and the ability to identify all species of native and exotic aquatic plants found in the southeastern United States, particularly those found in Florida. They are required to make recommendations to control and/or manage the various aquatic plants throughout the State of Florida and are responsible for reviewing and recommending approval or disapproval of all aquatic vegetation control program permits as required by the Department of Natural Resources or the Florida Game and Fresh Water Fish Commission. Duties include providing the general public with an extension service regarding the latest and safest methods of aquatic vegetation control.

Aquatic botanists also set up and carry out research projects in either chemical, mechanical, biological, or physical controls of noxious aquatic vegetation, and must have knowledge of general fish management methods and equipment.

Aquatic botanists are often called upon to speak to various civic, garden, and sportsman clubs on aquatic weed control and/or related subjects. They are required to meet with other state agencies, aquatic weed control groups, and private applicators in order to provide the latest information on herbicides, permitting, and regulations.

An average of 1,000 requests for assistance are received and acted upon by each aquatic botanist during the course of one year, and approximately 400 aquatic weed control permits are processed.

Miscellaneous duties include conducting vegetation transects for the grass carp study areas, surveillance of public boat ramps to prevent the spread of noxious aquatic vegetation, and miscellaneous emergency aquatic plant control measures required to keep popular fishing areas open to boat traffic.

The Aquatic Weed Control research section consists of two biologists, located in Eustis, who are responsible for determining the effects of herbicides on bottom organisms, and specialized field studies such as the recent study on the Rodman Pool of the Florida Cross State Barge Canal. A third biologist, located in Ft. Lauderdale, is responsible for collecting field data information on the four study areas stocked with the grass carp. The grass carp project is a cooperative study being conducted by personnel of the Florida Game and Fresh Water Fish Commission and the Department of Natural Resources.

The Department of Natural Resources designed a large water hyacinth harvester which will be operated by Commission personnel on the St. Johns River when lease agreements can be obtained to provide a mooring site, and if plant material is available in the river.

An aquatic vegetation survey conducted by Aquatic Weed Control personnel during the winter of 1973 determined there were an estimated 350,000 acres of noxious aquatic weeds in Florida waters. The figure included water hyacinth, hydrilla, eurasian watermilfoil, and alligatorweed, all of which are exotic or non-native species of aquatic plants in Florida.

A project designed to place the Withlacoochee River under a maintenance control program as a pilot study was implemented during the past year.

A total of 11,647 acres of water hyacinth were treated with 6,449 gallons of 2,4-D at a total cost of $105,696.70, for an average cost of $9.07 per acre of treated plants.

An increase in the price of 2,4-D, combined with a growing shortage of chemical from suppliers, will cause the cost-per-acre-treated figure to increase in the future. The cost of one gallon of 2,4-D increased from $2.35 to $7.15 within a 14 month period.

Successful attempt to produce largemouth bass, left, that grow faster and hit more readily would be a big plus for Florida's fishermen. Meanwhile, the natural Florida largemouth is no slouch when it comes to producing a happy smile. Spray plane, at right, passes over hyacinth-choked water.

Everglades Recreation

IN 1973, THE FLORIDA LEGISLATURE and Governor recognized the need for improved recreation facilities in the water conservation areas of the Everglades. As a result of this recognition the Legislature passed Chapter 73-249 Laws of Florida which created the Everglades Recreational Planning Board. The Planning Board was directed to develop a one-year and five-year plan for recreation improvements in the water conservation areas of the Everglades. The Board consists of 13 members appointed by the Governor. The selection of board members is restricted in order to provide representation from appropriate agencies, Indian tribes, and citizens of the three counties included in the plan.

In addition to creating a Planning Board, Chapter 73-249 charges the Game and Fresh Water Fish Commission with the responsibility of implementing the first-year and five-year plans. Staff positions include a project director, recreation planner, wildlife officers and game management specialists.

During the first 12 months of operation the primary objectives of staff personnel were to implement construction projects already funded, to improve and maintain wildlife habitat on the area, and to regulate use of the area by recreation enthusiasts.

In addition to these responsibilities, project staff assisted the Everglades Recreational Planning Board in the formulation and completion of the first-year and five-year plans. These plans have been completed, and they include proposed improvements at 26 sites in the water conservation areas, ranging from improved access, such as boat ramps, to major facilities offering camping, picnicking, nature study areas, and fishing opportunities. In the five-year plan, other activities planned include hunting, nature appreciation, target shooting, and boating. These activities can all be accommodated on the area with minimum impact to the environment.

Initially, the largest project was a major recreation facility at Tamiami Trail and L-67 in Dade County. Facilities at this site, known as Thirty Mile Bend, include camping, picnicking, bank fishing, nature study, and improved access. Construction of this facility is scheduled to begin in early 1975.

Other improvements currently scheduled include extensive work at Everglades Holiday Park, Loxahatchee Recreation Area, day use facilities along U.S. 27, and habitat improvement projects.

At Everglades Holiday Park and Loxahatchee Recreation Area, improvements include landscaping, sewage and water treatment facilities, increased camping sites, and improved parking and boating access.

Day use facilities along U.S. 27 will include picnic areas, landscaping, bank fishing, and improved parking.

Habitat improvement projects, coordinated with the Game Management Bureau, include construction and planting of wildlife islands, mucking of spoil banks along the Miami Canal, control of melaleuca trees, and installation of water control structures in the Miami Canal. The first phase of the wildlife island project is the construction of 53 islands, each 1/8 acre in size, in Dade and Palm Beach counties. Following construction, native trees, including saltbush (*Baccharis glomerulifolia*), maple (*Acer barbatum*), elderberry (*Sambuccus simpsonii*) and strangler fig (*Ficus baurea*), were planted on these islands.

The islands and the spoil banks of the Miami Canal will provide additional elevated sites for wildlife during extended periods of high water. The spoil bank project consists of placing muck on existing rock spoil banks along the Miami Canal. By mucking these areas, growth of native vegetation will be encouraged and their value to wildlife enhanced. Under initial plans, 55,000 square yards of muck 6 inches thick will be placed on one set of spoil banks and 55,000 square yards of muck 9 inches thick will be placed on another set.

The melaleuca control project was initiated by Game Management Bureau personnel. Under this project, approximately 15,000 trees have been treated in an attempt to discover an effective method of control for the melaleuca, an exotic plant that threatens to displace native species of plants in the Everglades because it is resistant to both fire and fluctuating water tables, two dominant forces in south Florida ecosystems. To date, no effective treatment has been discovered, although the chemical Silvex has produced favorable results under some circumstances.

The most important habitat management program currently planned for the area is water control structures along the Miami Canal. The need for these structures has been emphasized by the severe muck fires which occurred in the northern end of Conservation Area 3 between 1970 and 1974. The water control structures would minimize the damage caused by destructive fires such as the one which destroyed the area known as the Mud Canal in 1974. Prior to the fire, this unique area provided some of the best wildlife habitat found in the Everglades. Funding has been made available for these structures, and design plans should be completed in the near future by the Central and Southern Florida Flood Control District.

In other project action, negotiations were conducted between the Seminole Tribe of Florida and the Game and Fresh Water Fish Commission. As a result, an agreement was reached between the two parties concerning tribal lands. Under terms of this agreement, approximately 17,000 acres of tribal land in Conservation Area 3 will remain open to public recreation, including hunting and fishing. In return for these privileges, the Commission has agreed to assist the tribe in keeping the remaining tribal lands closed to public use and access.

As a result of these efforts, it is hoped that the general public will reap maximum recreational benefits in the Water Conservation Areas, with minimum impact on the wildlife and other natural resources of the area.

Photo By Morrie Naggiar

CECIL M. WEBB
WILDLIFE MANAGEMENT AREA
A FEDERAL AID PROJECT
UNAUTHORIZED GUNS, DOGS, TRAPPING DEVICES NOT ALLOWED
FLA GAME & FRESH WATER FISH COMM.

Photo By Art Runnels

Construction and planting of wildlife islands in the 'glades will benefit deer, opposite page, as well as other wildlife. Sign at entrance to Webb area, left, is typical of ones that welcome hunters to nearly 5 million acres of public hunting grounds in 40 areas scattered throughout the sunshine state.

Game Management

DURING THE 1973 FISCAL YEAR, the Game Management Division accelerated its continuing endeavor to provide more lands and game for Florida hunters. The Edward Ball Wildlife Management Area in Gulf County was opened to public hunting for the first time since its inception 7 years ago. Hunter success on the area was considered excellent, with a good crop of deer being harvested.

The deer harvested statewide remained stable on most management areas. During the annual deer trapping operation, a total of 105 deer were relocated to new areas to provide breeding stock where low populations were evident.

Interest continues to mount in archery and primitive weapons hunting. Early season archery hunts were conducted on 17 wildlife management areas, and special season hunts involving two or more time periods were held on seven wildlife management areas. Primitive firearms hunts were conducted on five management areas. Two special bear hunts were conducted, and resulted in considerable interest by the sportsmen.

At the request of the Commission, the Game Management Division undertook an investigation of the high hunter use on the wildlife management areas, with an eye toward the possibility of establishing a quota system on the individual areas to insure a sustained wildlife population while assuring continued hunter satisfaction. The Commission believed that the combination of increased human population within the state and the decreasing acreages available for public hunting was resulting in more and more sportsmen using wildlife management areas for hunting. The hunter-use survey accomplished by the Division substantiated the Commission's belief.

In 1951, 10 percent (9,710) of the licensed hunters in Florida (96,887) used the public wildlife management areas. In 1961, 20 percent (33,619) of the licensed hunters (170,061) in Florida used the management areas. In 1971, 40 percent (101,475) of the licensed hunters (256,005) in Florida used them. From 1951 up to 1971, the number of licensed hunters increased 64 percent while the number of licensed hunters utilizing wildlife management areas increased 845 percent. This obvious increase in the use of the public wildlife management areas by hunters reflected the high interest that was generated in Florida for public hunting areas.

Compared with the 1971 license figures, the 1973 figures indicate an increase in licensed hunters (257,353) of .5 percent and a decrease of 9 percent in the number of licensed hunters (91,199) who used the public wildlife management areas. To some, these latter figures may seem disturbing, and rightly so. The wildlife management areas cannot continue to sustain annual increases in utilization of 25 percent, as experienced from 1951 to 1961, or 20 percent, as experienced from 1961 to 1971. At some point our management areas will reach a state of saturation and will not be capable of supporting greater numbers of hunters, not to mention the increasing hunter dissatisfaction.

The 1973 figures support the premise that maximum hunter pressure has been reached on some management areas and that the decrease in permit sales could be a direct result of hunter dissatisfaction.

If there is hunter dissatisfaction, there must also be a decreased overall hunting experience, regardless of what makes a quality experience. There is also the problem of possibly outpricing hunting by the establishment of special fee areas. If the Commission does not take action to alleviate hunting pressure, spread out the legal harvest (80% of the legal deer harvest occurs in the first few weeks of the season), or provide equal hunting opportunities at a uniform price, the trend indicated in the 1973 license data may further deteriorate, thus indicating further inability to supply an equitable hunting experience on public hunting areas.

This initial survey is being expanded and further determinations are anticipated during the next year.

An adjunct to the study has been an investigation into the possibility of establishing a procedure whereby the Commission could enter into written agreements with owners of large tracts of forest or agricultural lands with the landowners charging fees in exchange for public hunting access.

Early results from discussions with several landowners

(*Continued on next page*)

Table 1. Statewide Annual Harvest Trends Of Major Game Species

Species	1969-70	1970-71	1971-72	1972-73	1973-74
Deer	41,906	48,600	48,900	58,500	57,122
Turkey	32,600	25,200	25,800	28,900	29,885
Bear	18	7	13	10	9
Wild Hog	28,500	36,000	38,700	60,900	84,128
Quail	2,847,500	2,423,500	1,712,700	3,154,800	1,969,950
Squirrel, Gray	1,691,500	1,630,000	1,458,000	1,333,000	1,412,890
Duck	389,200	546,965	522,500	510,700	469,774
Dove	2,386,600	2,157,400	2,219,300	2,650,300	3,758,350
Snipe	—	—	73,800	225,600	343,637

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have brought a favorable response to the proposal, and the future of this program, which would make available substantial acreages to alleviate pressure on existing management areas, appears certain.

Closely paralleling the activity involving the proposed quota system to improve the Florida hunting situation, the Division of Game Management, in cooperation with the Department of Natural Resources, carried out negotiations with the owners of the vast Three Lakes Ranch property in Osceola County with the objective of bringing a substantial portion of the property into the wildlife management area system. Culmination of this transaction will result in 51,000 acres of highly productive hunting lands ultimately being added to the present total of 4,724,513 acres now under management area protection.

Special surveys and studies did not occupy the full time of personnel of the Division by any stretch of the imagination. Biologists, researchers, and game managers all reported a wide variety of activities. The following brief summaries in no way indicate a priority of importance. Each activity adds an important component to the total picture of the accomplishments of the Division during 1973-74.

The development and maintenance of Florida's immense wildlife management area program consumed a large share of the effort of Commission personnel. The program currently comprises 4.8 million acres, with 39 separate management areas over the entire length and breadth of the state. The system includes 12.7% of the land in Florida, and approximately 40% of the state's licensed hunters utilize it. The program is of vital importance to the future of public hunting in Florida, because of the state's rapidly expanding human population and its rapidly diminishing amount of land available to the public for outdoor recreation.

The Management Area System includes 120,000 acres owned by the Florida Game and Fresh Water Fish Commission, 1,253,184 acres owned by other agencies of state government, 1,671,600 acres of federally-owned land, and 1,679,729 acres owned by various private companies and individuals. The majority of the privately-owned land has been secured through a series of lease agreements with numerous large industrial forestry firms that have in the past donated their land free of charge or at a very nominal lease fee.

Forty percent of the recent increase in management area permit fees has been allocated to increase lease fees to private landowners participating in the management area system, and $200,000 has been set aside for this purpose. The Commission feels that a fair reimbursement to landowners is badly needed to assure their continued cooperation in the future.

Game Management Division personnel were busily

Table 2. Florida Wildlife Management Areas In 1974

			Acres
State-Owned Lands			
	Blackwater		183,100
	Brown's Farm		5,900
	Bull Creek		20,800
	Camp Blanding		70,000
	Cecil M. Webb		62,500
	Citrus		41,000
	Croom		21,700
	Everglades		755,300
	J. W. Corbett		56,000
	Richloam		55,500
	Green Swamp		49,900
	Three Lakes Ranch		51,484
		Total	1,373,184
Federally-Owned Lands			
	Apalachee		6,000
	Apalachicola		557,400
	Avon Park		107,600
	Eglin		464,700
	Ocala		366,700
	Osceola		157,200
	St. Vincent		12,000
		Total	1,671,600
Privately-Owned Lands			
	Aucilla		206,136
	Edward Ball		65,025
	Farmton		52,170
	Fisheating Creek		71,668
	Fort McCoy		18,609
	Gaskin		115,555
	Guana River		12,200
	Gulf Hammock		68,453
	Hudson		8,920
	La Floresta Perdida		30,116
	Lake Butler		101,291
	Lochloosa		40,447
	Nassau		80,589
	G. U. Parker		17,000
	Point Washington		165,000
	Robert Brent		95,000
	Steinhatchee		390,764
	St. Regis		20,505
	Tide Swamp		20,543
	Tomoka		99,734
		Total	1,679,729
Recap:	State		1,373,184
	Federal		1,671,600
	Private		1,679,729
		Total	4,724,513

engaged in wildlife habitat improvement programs on wildlife management area land during the year. Extensive controlled burning programs were accomplished on areas where terrain and land ownership allowed. Division personnel planted approximately 5,000 acres of wildlife food plots for such species as deer, turkey, quail, and dove during the year. Nine public dove fields were planted, on which over 6,000 doves were killed by hunters. Three waterfowl impoundments (Hickory Mound, Guana River, and Arbuckle Marsh) were operated by the Commission on wildlife management areas, to provide quality waterfowl hunting. Other habitat improvement projects accomplished included planting oak seedlings on selected areas, the construction of wood duck nesting boxes, chopping of vegetation for stimulation of native wildlife food plants, and the operation of quail and turkey feeders on selected areas.

A total of 105 deer were trapped and relocated throughout the state as penalty deer and breeding stock for management areas with low deer populations, and a deer telemetry study is in the planning stages, with most of the activity centering around a literature review and equipment testing.

A total of 451 wild hogs were trapped and relocated to selected wildlife management areas during the year. Areas receiving the hogs were Webb, Corbett, Everglades, Browns Farm, Avon Park, Guana River, and Bull Creek.

Three hogs were trapped on the Lochloosa Area for neck measurements to test transmitter collars. Each was weighed and ear tagged, and one was given two I. P. injections of a tranquilizer to test methods of handling large wild hogs.

Alligator holes were surveyed in Conservation Area 3 for nesting activity. No nests were discovered north of Alligator Alley and west of the Miami Canal. Four nests were discovered north of the Alley and east of the Canal, and three were discovered south of the Alley. By August 30, six of these nests had been destroyed by rising water tables. The remaining nest was completely above water, and this clutch hatched on August 31.

Photo By Lovett Williams

A turkey hen and brood, left. Productivity of this prime game bird is presently the subject of study on the Fisheating Creek Wildlife Management Area in Glades County.

Personnel working on the long-range turkey studies began compiling data for several studies that have reached the reporting stage.

One sick turkey specimen was obtained from the Aucilla Wildlife Management Area. Upon autopsy at the Veterinary Science Lab, the turkey proved to be debilitated with fowl pox.

Approximately 23 turkey nests were located for the productivity studies at Fisheating Creek. Some of these were robbed by project personnel to check renesting tendencies. The hens renested as expected, one for the third full clutch and her fourth nesting attempt that spring. The first poults hatched on April 26, 1974. Five turkey nests were found on the Lochloosa study area.

Research activities during the period included completion of arrangements for the fall turkey hunting study.

At the Fisheating Creek study area, 29 hen turkeys were radio instrumented for the seventh and final year of the turkey reproduction study. The turkey hunting study continued as planned, with regular monitoring of kill, crippling, and behavior of hens and gobblers on the hunting area. A significant proportion of the hens were killed illegally. From the hen kill data and hunter interviews, it is evident that hunters cannot distinguish young gobblers from hens, even in hand after being shot. This has caused a reduction in the reported legal turkey kill because many hunters fear that they have killed hens, when in fact they have shot a young gobbler. Some of the hens and young gobblers have been left by hunters where they fell and later found by radio contact.

Three toe-clipped turkeys of known age were examined on the Fisheating Creek study area during December to obtain data on feather growth rate to be used in developing an aging method for wild turkey specimens based on wing tips.

Six gobblers and 12 hens were instrumented in the spring gobbler study on Lochloosa Area. One of the objectives this year was to compare clutch size, hatching rate, and season of nesting on Lochloosa, where a spring gobbler season is held. The disturbance effect of heavy hunting pressure during spring warrants more attention as the spring season becomes more popular and the fall season is closed completely in the Northwest Region. Two of the instrumented gobblers on the Lochloosa Study Area were killed by hunters during the spring turkey season.

Field trips were made into the Big Cypress Swamp to evaluate the habitat for turkey, for general familiarization, and to make a preliminary assessment of its value to the state as a wildlife area.

A mail survey of otter populations was distributed, and manuscripts were prepared on the food habits of the white ibis and armadillo in Florida, based on specimens taken in connection with other studies. Plans are being made to study a well-established population of white-winged dove in the Homestead area, with a view toward assessing its potential as a new game bird.

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Two meetings were held with university and Division of Health biologists to plan cooperative wildlife disease studies under Federal Aid jobs, including a recent blue tongue problem in deer at a Duval County hunting preserve.

Eight white ibises were collected for parasite work, and three wood storks were collected for a display group at the American Museum. The stork specimens were analyzed for pesticides, examined for parasites, disease, and reproductive condition. and then stomach contents were identified and analyzed for pesticides.

A loon die-off reported during December did not reach the alarming proportions of the die-off of 1970-71. Three carcasses were examined by the Veterinary Science Group, and several others were obtained to be shipped to Gainesville from storage on the east coast. A large die-off of red knots (a salt water shore bird) was investigated. A number of live, sick and freshly-dead specimens were obtained from the Gulf coast, and were autopsied at the Veterinary Science laboratory. Preliminary indications are that oil, pesticides, or botulism were not involved, but laboratory work continues, especially on the possibility of a rare type of botulism.

Three sandhill cranes which were hatched from wild eggs and raised at the Patuxent Wildlife Research Center in Maryland were received for experimental release, and are being held in the pens at the laboratory site. They will be radio-instrumented to monitor their adaptation to living wild, for a study in cooperation with the Patuxent Center. The Federal Aid project was amended to include this study as a new job. The work was formerly being done under General Game Management.

A lesser scaup die-off was reported from Tampa Bay and investigated by a field party of research cooperators under the Federal Aid project and by DNR. Early reports that the die-off was related to a red tide outbreak were not corroborated by the laboratory work, but additional tests were made. Botulism and chemical poisoning were also ruled out by the preliminary work.

A sea bird die-off that has been underway (and under investigation) since early fall on the lower Gulf coast may be due to pesticide poisoning, according to the early lab reports. Cormorants were the most seriously affected. Taxonomic examinations were made to determine whether the cormorants are local residents or of the northern migratory subspecies. Additional collections of specimens will be made to further pin down the origin of the highly contaminated birds, and the levels of their pesticide residues.

The mourning dove call count survey conducted during the year involved 16 routes. The number of doves heard on the survey routes this year was down 2.4 percent from last year, but on par with the 6-year average of 7.1 calls heard per mile. The telephone dove kill survey determined that 63,100 hunters killed 1,478,300 doves during the 1972-73 season, a 38.1 percent increase over the previous season harvest. The total kill for the 16 states in the Eastern Management Unit was 21,984,500 birds, a 2.4 percent decrease from the previous year.

Ten nestling brown pelicans were taken into captivity for tests of drugs to rid them of a species of parasitic fluke which has been implicated in several reported die-offs. If the pen work goes as expected, larger-scale tests can be conducted on a wild colony at some future date.

A series of waterfowl inventories were taken, a bald eagle survey flown and the data tabulated, and two sets of quail management plans prepared—one for Carpenter's Ranch, at LaBelle, and one for Agrico Chemical Company, at Pierce.

A proposal was made to the General Development Corporation for a small wildlife area for possible leasing, and inholders on the Webb Area were contacted regarding a possible trade or purchase of land.

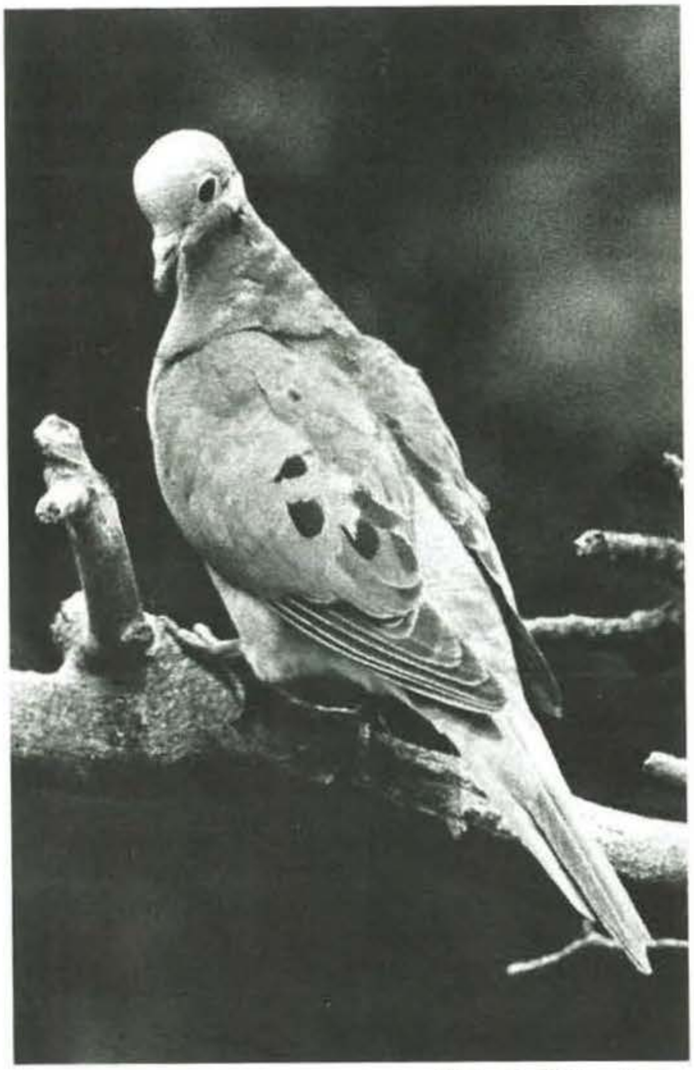

Photo By Wallace Hughes

Mourning dove is a major game species in Florida as it is throughout the South. The total annual harvest in the 16 eastern management area states is about 22 million birds.

A telephone survey of the hunters who purchased Cecil Webb area daily quail permits during the 1972-73 season was conducted. The purpose of the survey was to obtain the feeling of quail hunters relative to increasing the permit fee from $5 to $10. The results of the survey showed that about 54% favored the increase; approximately 46% opposed.

Wood duck nesting boxes were checked for utilization on the Aucilla, Camp Blanding, Lake Butler, Nassau, and Steinhatchee management areas. Nest box utilization by wood ducks ranged from approximately 10% to 45%, depending on habitat conditions.

Research was conducted in the Tallahassee area on geese and bears. A trip was made to New Jersey to relocate geese in the continuing effort to establish non-migratory flocks in Florida. A total of 272 young of the year Canadian geese were obtained at the Brigantine Refuge in New Jersey. One hundred sixty birds were released on 13 sites in Northwest Florida and the balance on seven sites in Central Florida. The spring nesting period proved very successful. Thirty-six birds were observed nesting, and 31 goslings were eventually counted. Many nests probably were not located due to the seclusive habits of geese in selecting their nesting sites.

As the fifth year of this program is concluded, the results to date appear significantly good. The transplanted young birds appear to be acclimated to their new habitat, and evidence no inclinations to embark on migratory flights to northern climes during the spring. The program will be continued, with further efforts being made to locate predator-free habitats in the south central areas of the state.

Vegetation sample plots were surveyed on the Osceola National Forest, to determine the effects of summer controlled burning on runner oak and vaccinium production on longleaf upland sites. The initial findings on this survey indicated an 800% increase in runner oak acorn production and a 1200% increase in vaccinium berry production one year after an August controlled burn.

In the Everglades Region, experiments have been made with various herbicides and dosages for the control of exotic plants. The primary target species has been melaleuca. By organizing area Boy Scouts to help, Game Management personnel succeeded in treating over 10,000 melaleuca trees in Conservation Areas 2 and 3.

Work continued on assessment of wetlands throughout north central Florida, as part of the North Central Florida Regional Planning Council evaluation of set-aside areas for open space wildlife and nature study and environmental protection.

During the year, research project personnel assisted the Environmental Protection Section in identifying valuable wildlife areas in the state which are endangered.

Personnel spent other time flying Florida duck inventories, assisting with deer research in the Ocala National Forest, turkey and deer management at Wekiva State Park, quail management, quail trapping and banding, assembling information on legislation in the southeastern states relative to threatened and nongame species (which were summarized and reviewed by the Rare and Endangered Species Committee at the Southeastern Association of Game and Fish Commissioners meeting in Hot Springs), participating in and attending various training schools held during the year, and preparing various Federal Aid project progress reports for submission to the U.S. Fish and Wildlife Service in Atlanta.

Of the 7,410 cases posted by Commission wildlife officers during the report period, gun and light cases numbered 360. Cases involving illegal taking and possession of deer were recorded at 265 during the year.

Photo By E. M. DeFoor

Law Enforcement

LONG-RANGE PLANNING, evaluation of existing enforcement programs, and implementation of specialized enforcement projects were the keynotes of 1973-74.

The Bureau expended considerable time laying the groundwork for an eventual transition to a 40-hour workweek, 24-hour communications system, and FCIC-NCIC terminal capabilities. Although not destined for implementation until the summer of 1974, the cumulative effect of these innovations will completely revamp current enforcement efforts.

With spiraling interest in promulgation of federal laws affecting fish and wildlife, the Enforcement Bureau became progressively more involved in reviewing and commenting on the potential impact of these laws. Such federal legislation as the Endangered Species Act of 1973, the International Endangered Species Treaty, the Injurious Wildlife Amendment to the Lacey Act, the falconry amendment to the Migratory Bird Treaty Act, the Marine Mammal Act, and the proposed accreditation bill for zoological parks have consumed a great deal of time and effort. However, since each of these federal enactments has a significant impact on the functions of a state wildlife agency, it has proven essential that the Bureau take an active role in the review of these laws and, through negotiations, propose compromise amendments that will be in the best interest of the respective state programs.

The funding by the 1973 Legislature of six inspectors positions enabled the Bureau to fully implement the inspections program this year. The inspectors, strategically located throughout the state, are responsible for monitoring the importation, exportation, exhibition, propagation, and sale of fish and wildlife. Early reactions indicate the overwhelming success of the Bureau in stemming unwarranted commercial exploitation of certain species, preventing inhumane treatment of captive wildlife, and reducing the frequency of illegal imports and exports. This specialized function of law enforcement is destined to expand as interest grows in regulating these wildlife-oriented enterprises.

The Investigation unit culminated another successful

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undercover operation in April of 1974, resulting in the arrest and conviction of six market hunters in the Eglin Wildlife Management Area. Adjudication of these cases resulted in 22 days of jail time, $14,375.00 in fines, 14 years supervised probation, and forfeiture of two vehicles.

The basic requirements for new wildlife officer candidates were upgraded this year, requiring two years of college, or two years of law enforcement experience, or two years of honorable military experience, or three years of progressively responsible work experience dealing with the public. Through its selection of new officers and training programs, the Bureau is continually seeking the best qualified and subsequently the most professionalized wildlife officer candidates.

The Bureau of Law Enforcement is now providing 20 wildlife officers to instruct courses in environmental law enforcement for 40 accredited Police Standards schools throughout the state. The two-hour course was recently included as a portion of the mandatory Police Standards curriculum for all law enforcement officers in Florida. Wildlife officers are well equipped to instruct this broad-based course for prospective enforcement officers because of the knowledge and experience gained from a diversified enforcement program. As indicated in previous reports, the Bureau of Law Enforcement is continually expanding its efforts to meet the demands of all environmental enforcement problems. Such a program encompasses active participation in pollution control, habitat preservation, dredge and fill, humane treatment of wildlife, boating safety, police support services, search and rescue, and both game- and nongame-oriented functions.

Wildlife officers posted 7,410 cases during this reporting period. Cases relating to the illegal taking or possessing of deer numbered 265, while gun and light cases totaled 360. Alligator violations slightly increased from 49 in 1973 to 59 during 1974. Fishing without a license remained the leading category, with 2,719 citations issued; and boating safety violations totaled 600. A total of 76 narcotics violations were recorded, and officers were involved in 69 traffic-related cases. Resisting arrest accounted for 35 charges and continues to be a concern of the Bureau.

The final paragraphs of the previous year's annual report eulogized wildlife officers who had lost their lives in the line of duty. It was a meager attempt to put into words the dedication, courage, unselfishness and devotion exemplified by the wildlife officers serving the State of Florida. As public servants, wildlife officers are vested with the difficult responsibility of protecting this state's natural resources and serving its citizenry. It is a task they eagerly accept and devote their lives to fulfilling. It is, however, reprehensible that such dedication to a worthy and public cause may be answered by the bullet of a man who places little value on this state's wildlife resources, and even less value on human life itself.

Wildlife Officer Dan B. Crowder paid the ultimate price for his devotion to the cause of wildlife law enforcement. In the early evening hours of May 3, 1974, Officer Crowder was senselessly slain while attempting to apprehend a deer poacher in Lafayette County. He was a respected law enforcement officer, and will be remembered by his family, friends, and compatriots for his devotion to each.

Information and Education

WERE THE GAME COMMISSION TO ADOPT the titles and classifications of private industry, the Information-Education Bureau would doubtless have the title of "Sales Department." Call it what you will: information-education, public relations, or advertising, the name of the game is sales.

Three hundred sixty-five days a year, the Bureau is in the business of "selling" conservation. This might be as direct as selling the Commission's new game management program relative to a particular area to members of a local club. Or it could be an effort in a weekly column to persuade the nonhunter of the necessity of hunting, or of the inherent dangers in a particular gun control law.

To accomplish this overall program requires the utilization of many diverse disciplines. There are needs for photographers, script writers, artists, sound technicians, layout men, lecturers, public relations types, broadcast and TV folks and, yes, even salesmen! The Bureau has the use of these specialized talents in its own group of officers. Still, there are times when a situation requires those talents not available in-house and these are often provided by other bureaus of the Commission.

Within the Bureau there are five distinct programs continuing on a year-round, on-going basis. These are: general information and education, which includes administration, central planning and regional extension; audio-visual; conservation education; hunter and firearms safety training; and the wildlife reserve program.

GENERAL INFORMATION AND EDUCATION—The Bureau personnel includes five education officers assigned to regional operations who, along with their secretaries, are responsible for the "sales" in their assigned regions. A region will involve an average of 13 counties and will cover about 1/5 of the state.

These five officers, plus a branch officer in Dade County, are responsible for implementation of programs at a regional level. They are in daily contact with local media and with local sports and government leaders. They carry out two programs. One is the overall statewide sales program as it applies to their regions. The other is a parallel program to meet local problems and requirements.

At both levels, there are a number of techniques and tools to carry out the program.

News and Information Releases: During this reporting period, a new and exciting concept of news and information releases was adopted by the bureau. The Biweekly News and Information packet consisting of from seven to twelve short crisp news and human interest features from around the state combined into one packet is mailed on a biweekly basis to all news media including daily and weekly newspapers, radio and television stations, sportsmen and conservation clubs, county tax collectors and other public officials. Each Commission employee also receives the news packet in order that he might keep abreast of events concerning conservation and the Commission. It should be reported that response from the media regarding the news and information packet has been excellent in that it keeps the media abreast of statewide events.

In addition to the Biweekly News and Information packet, the Bureau utilizes a system of statewide news releases with emphasis on immediate news as well as releases concerning local level news from the regions. In matters of emergencies, the Bureau relies on the wire

WORTH $53 MILLION YEARLY TO FLORIDA
ALL FISHERMEN MUST POSSESS A VALID FISHING LICENSE
ALL NON-RESIDENTS MUST BUY NON-RESIDENT LICENSES TO FISH BY ANY METHOD
LICENSE FEES
BAG LIMITS - GAME FISH
TOTAL POSSESSION LIMIT
COME FISH WITH ME IN FLORIDA
SOUTHEAST FLORIDA FISH AND FISHING
LET'S GO FISHING IN FLORIDA
GAME AND FRESH WATER FISH COMMISSION
STATE OF FLORIDA
GOOD FISHING FOR ALL
FLORIDA

Photo By Art Runnels

Basic information on Commission activities and the state's wildlife is presented in series of pamphlets and brochures.

services as a speedy form of communication with the news media.

During 1973-74, a total of 26 biweekly news and information packets were distributed from the central office, plus 32 releases of immediate news value. While a limited number of releases were mailed from the regional offices, it must be pointed out that the biweekly packet has not only reduced the necessity for regional mailing but has also served to improve the overall coverage area of the local level type of news story.

Brochures and Pamphlets: The majority of brochures and pamphlets are designed for the purpose of informing and educating the general public. They are written in a style that is easy to understand and, at the same time, provide basic wildlife information. Most are designed to fit into the standard business type envelope and provide a handy source of information in reply to numerous mail requests.

During the past year, new designs were incorporated in the information brochure and registration forms for the Youth Conservation Education Camps plus an information brochure relating to the Commission's program of Hunter and Firearm Safety training. Other information brochures were updated, reprinted and distributed.

Newspaper and Magazine Feature Articles: These articles are used when a regular "hard news" release won't tell the full story. They also provide an excellent opportunity to spread a philosophical message to the public. This past year, the Bureau released six illustrated feature articles. These were illustrated with pen and ink sketches provided by the magazine staff. An evaluation of clipping returns revealed high usage of the material by the media, primarily attributable to the inclusion of the artwork. Over 85% of the media using these feature releases used them in their entirety, and several enlarged the artwork to make a full page article.

An outstanding example of such feature would be the special program developed by the Bureau for the Labor Day weekend. On this occasion, the Bureau mailed a special packet of feature stories and informational copy of fishing hotspots to encourage citizens to try fresh water fishing for the Labor Day. The packet contained screened photographs for reproduction by offset presses, line drawings, and fishing fillers, as well as color photos to television stations and fishing messages to the Florida radio stations.

Weekly Newspaper Columns: The column "Florida Wildlife," with comments on the outdoors, is mailed to all newspapers and radio stations in Florida on a weekly basis. It provides an area for expanded discussion of conservation subjects. The latest tabulation indicates the column is used by a consistent 68 daily and weekly newspapers with a combined circulation of 1,393,950.

During the year, the Commission's Bureau of Information and Education received the annual Florida Outdoor Writers Association award for Outstanding Public Relations. The awards program was judged by the editorial staff of SPORTS AFIELD Magazine, with the award presentation based on the exceptional quality of the news and information service of the Bureau.

Personal Appearances: Information-Education personnel make many personal appearances before groups of all types. A regular daily schedule may include a talk for a school group in the morning, a civic club program at noon, and a sportsman club presentation in the evening. In addition to presenting programs, the Information-Education Officer serves as booking agent for other personnel when a program relating to a specific subject is considered appropriate.

Information-Education personnel appeared on more than 500 radio and television programs in order to utilize the broad coverage of the broadcasting media to carry the conservation message, and launched a new concept in radio programming during the hunting season.

Radio and Television: While the Commission appears regularly on but one television station with its own program, there are large numbers of appearances as guests on radio and TV outlets statewide.

Other use of these media this year has included the

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policy of sending a series of typed 30-second public service announcements on a regular basis. These carry messages of current interest on youth camp openings, licenses due, season dates, and other appropriate subjects.

Exhibits: The Information and Education Bureau designs, constructs, and maintains permanent exhibits at various fairs and exhibitions throughout the state. Such exhibits provide an opportunity for maximum exposure to visual concepts of conservation, and serve as a medium for exchange of communications between the man on duty and the visitor who may never meet a representative of the Commission in his regular way of life. In addition to the permanent exhibits, the Bureau utilizes a mobile or portable exhibit on special occasions. Such occasions during the past year included exhibits at the annual meeting of the Organized Fishermen of Florida, and special outdoor recreation shows at one of the Tallahassee shopping malls, at the Taylor County Forestry Festival, and at the Seafood Festival, at Apalachicola.

The Bureau was also heavily involved in aiding and assisting local sportsmen and conservation clubs with the planning and erection of exhibits during the annual National Hunting and Fishing Day. This Bureau was responsible for statewide coordination of this event.

Correspondence: Each year thousands of letters are received requesting conservation information. Each letter, regardless of content or subject, receives individual attention. Many require an extensive reply while others may be answered with an informative brochure or pamphlet. If an individual takes the time to write a letter, Information and Education policy provides that the writer deserves prompt individual attention in reply.

AUDIO-VISUAL—By definition, audio-visual covers a broad spectrum of activities and disciplines. This has been reaffirmed by the varied and diverse needs of the Commission during the past year. Photographic and related services were provided for Commission news releases, FLORIDA WILDLIFE Magazine, scientific and technical reports and publications, Commission ceremonies and activities, and identification photos for all Commission employees.

The Audio-Visual Section is much more than simple photography and includes operations such as script writing, film production, graphic art assignments, and technical advisor on matters relating to both audible and visual presentations and programs.

The Audio-Visual Section of the Information and Education operation has continued to place emphasis on the production of color slide lecture series rather than movie films. Following a basic concept that the objective is to inform and educate, the color slide series can be produced at a fraction of the cost of a movie film of equal time and message content. The color slide lecture can be interrupted by the programmer for ad lib comments or local level input, and may be updated to apply to any given situation by substitution of one or more slides.

Audio-Visual is a service section to the other operations of the Commission and, as such, adheres to the philosophy that audio-visual will not tell others what to say, but will advise on how to improve the communication concept through use of visual communication and audio techniques.

Programs initiated over the past year included new color slide lecture series and public service color slides for use by the television media.

CONSERVATION-EDUCATION—"Come, join us for an adventure exploring Florida's woods and waters" was the invitation extended by the Commission's Youth Camps this summer. Over 1,800 Florida youngsters between the ages of 8 and 14 responded to the offer for an introduction to the wilderness, wildlife, woods, and waters. A program initiated in 1973 was continued into 1974, and the youth camps continued to be operated with coeducational sessions. All sessions were open to girls and boys, allowing families to send children as a group rather than as individuals, an especially attractive feature since few camps are operated so a brother and sister may attend simultaneously.

Photo By Jerry Girvin

There are presently two camps, each set in a completely distinct environment. The Ocala Camp, located at Lake Eaton, in the Ocala National Forest, provides an area of pines and hardwood hammocks, fresh water lakes and streams. The Everglades Camp is located in the J. W. Corbett Wildlife Management Area, near West Palm Beach, in a setting of sawgrass, savanna flats, cypress and palm hammocks, and Everglades-related wildlife.

Programs at both camps are inter-related and divided into six areas of interest: Nature, riflery, archery, fishing, swimming and canoeing. In nature study, a camper may choose a study of water, conservation and soils, or land study. No matter which area he might choose, an instructor specializing in that field imparts an enjoyable learning experience through lectures and physical contact with the major subject.

During the summer camp period, youngsters were introduced to firearms and the Hunter and Firearms Safety course, and were so certified. Many youngsters also received junior lifesaving certificates.

During the winter months, the camps are made available to groups on an organizational basis. During weekdays, the sites may be utilized by schools or universities for ecological classrooms, field trips, or seminars. On weekends, scouts, churches, and civic groups hold retreats or conventions. Sportsmen's clubs are invited to consider the facilities for meetings and barbecues.

WILDLIFE RESERVE—The Wildlife Reserve program is an operation that involves the Commission and uniformed citizens interested in wildlife conservation. The program gives conscientious and dedicated sportsmen an opportunity to be trained in wildlife conservation work, and to use this training to benefit the conservation programs of Florida by working with personnel of the Commission in various activities.

The Wildlife Reserve has become an important function of the Information and Education operation, and has extended the conservation arm of the Commission by freeing regular personnel for more demanding responsibilities.

The pilot program was begun in 1969 in Orange, Brevard, and Seminole counties under the supervision of the education officer assigned to the Central Florida Region. In 1971, a full-time coordinator was appointed and the program was expanded to include Citrus, Lake, Sumter, Osceola, St. Lucie, Marion, and Volusia counties. In 1973, the program was further enlarged to encompass all 12 counties of the Central Region, from St. Johns County to Osceola, and from Citrus to Flagler County.

Reservists are identified by a uniform consisting of khaki shirts, olive trousers, trooper-style hats, a distinctive shoulder patch, and the badge of a wildlife reservist.

Becoming a member of the Wildlife Reserve includes considerably more than just joining. Applicants are recommended by Commission personnel in the area in which the applicant resides. The applicant must also pass written and oral examinations relating to wildlife, and be physically fit and able to perform the required duties. The maximum strength of the Wildlife Reserve is limited to three times the number of regular wildlife officers in each county.

The Wildlife Reserve program has its own chain of command and its own supervisory personnel, who direct the activities of reserve members through the Commission Reserve Coordinator.

Duties and assignments of the reservist are many, and may range from accompanying a wildlife officer on regular patrol to working with fish and game management personnel, checking fishing creels, or posting a public hunting area. They may be called on at any hour to capture a nuisance alligator, or present a conservation lecture to a scout or school group or a sportsmen's or civic club. They may assist with or present a Hunter and Firearm Safety training program, as most reservists are certified instructors. The reservist may man an information booth at an exhibit, operate a check station on a wildlife area, maintain a radio communication station, or appear in court as a witness when involved in an arrest with a wildlife officer.

Many reservists have attended either the 280-hour Police Standards Course or the 80-hour Auxiliary Police Officers Course. The scope of authority for reservists completing the approved training is limited to detecting violations of laws governing wildlife and fresh water fish, and all cases are made under the supervision of regular wildlife officers.

Reservists are required to file regular activity reports, and it is interesting to note that during a six month period, 10 reservists reported a total of 2,715 hours carrying out conservation-related programs. These included law enforcement assistance, information-education activities, answering complaints about alligators or other wildlife, assisting wildlife management projects, in-service training, and time spent in Hunter and Firearms Safety training.

The Wildlife Reserve program is still new, but it is growing, and holds great promise for the future of wildlife conservation in the State of Florida.

Provisions of the Wildlife Reserve program require that each regional reserve unit be staffed with a full-time Commission employee to serve as coordinator of the reserve activity. At the present time, the Commission has but one such employee; however, a request is being made for four additional employees to enable the Commission to expand the program into the other regions of the state. The true value of the Wildlife Reserve program and the individual wildlife reservist is realized upon viewing the current mandatory 40-hour work week of the regular wildlife officer and noting that the Commission might actually double the effective manpower

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Among the most popular activities at the Commission's youth camps are fishing, left, and riflery, below. More than 1800 Florida youngsters between the ages of 8 and 14 attended sessions at the two camps this past summer.

Photo By Jim Reed

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force for wildlife conservation through an accelerated program of active wildlife reservists.

The high caliber of the individuals serving as wildlife reservists is best documented by the single fact that ten reservists have joined the Commission as full-time officers, nine as wildlife officers and one as a fisheries aide. One former reservist was selected as the outstanding wildlife officer for his assigned region. Viewing the Wildlife Reserve program cannot help but cause a person to ponder and wonder if the untimely death of Wildlife Officer Dan Crowder might have been prevented if a reservist had been riding with him.

HUNTER AND FIREARM SAFETY TRAINING—The Game and Fresh Water Fish Commission and the Information and Education Bureau is deeply committed to its Hunter and Firearm Safety Training program, and while the commitment is great, the pride is even greater. As a newly revised concept of a long-standing program, it is of interest to note that the Florida Hunter and Firearm Safety Training program received a third place in international competition during the past year.

The primary purpose of the training program is to teach proper gun handling in circumstances relating to hunting. However, more than that, it offers the opportunity for a youngster or adult to become familiar with the fundamentals of firearms handling and firearms safely while at the same time opening the possibility of an interesting and challenging hobby.

Regardless of the benefits, the primary purpose of the training program is *safety with firearms.*

Florida has over 800 certified instructors who volunteer their time and talents in teaching Hunter and Firearm Safety. The training program covers a wide area of hunting-related activities and each student is exposed to subjects ranging from the basic laws and regulations of firearms and the taking of wildlife, landowner-sportsman relations, nomenclature and discussion of firearms, the common causes of firearm accidents, proper and safe firearm handling, first aid, marksmanship, wildlife management, and a trip to a firing range where the student fires live ammunition under supervision.

The statewide training program has trained over 5,000 students as safe hunters, and the program is just beginning.

During the past year, the nation's first firing range constructed under the new program was completed in the Osceola National Forest. This range is now open and supervised for training of young hunters in firearm safety and for public use on scheduled occasions.

During 1974, approval was granted for an expansion of the statewide program through a regional concept, with employment of five regional Hunter and Firearms Safety Training Supervisors. While this concept was somewhat slow getting off the ground, it will eliminate the necessity of the local volunteer instructor having to communicate with one program coordinator stationed in the central part of the state, and will improve both the supervision and the liaison between the program supervisor and the individual instructor.

The Hunter and Firearm Safety Training program has continued to encourage hunters to wear blaze orange hunting garments as a safety factor. Reportedly, not one hunter wearing such colors has been the subject of a situation in which he was mistaken for game.

It is interesting to note that while legislation for mandatory hunter safety training for young hunters was not approved by the 1974 Legislature, the U. S. Fish and Wildlife Service will have a mandatory training program during the 1975 hunting season on the Merritt Island Wildlife Refuge. Prior to being issued a permit to hunt on the area, a hunter must exhibit certification that he has attended and successfully passed the Florida Hunter and Firearm Safety Training course of instruction.

Environmental Protection

THIS YEAR WAS ANOTHER YEAR OF GROWTH for the State of Florida. New arrivals swelled the population at the rate of over 6,000 per week, and each new arrival created more stress on already over-strained fish and wildlife resources. The Environmental Protection Section, as has the rest of the Game and Fresh Water Fish Commission, continued to address the compound problem of maintaining adequate fish and wildlife habitat within the state in the face of increased urbanization and unprecedented population growth.

The Section works within a governmental system which was developed to put wildlife and wildlife habitat values into perspective with traditional social and economic values. It has always been difficult to quantify these fish and wildlife values but we know that they are of recreational, aesthetic, educational, biological, social, and even commercial importance. These values are becoming increasingly important as the state's human population continues to expand, and as the needs of the human and wildlife populations come into more frequent conflict. The Game and Fresh Water Fish Commission, through the Environmental Protection Section, works closely with those agencies responsible for planning for the needs of present and future Floridians by providing a full assessment of fish and wildlife values along with a determination of the effects of human expansion into their environs, in order that the planning agencies can review all facets of the problem.

This fiscal year marked the continued growth of the Environmental Protection Section. With an increase in the number of biologists, the Section was able to perform almost all field inspections "in-house" without having to draw on biologists from other divisions. Close coordination has been maintained, however, with personnel of the Fisheries Management and Game Management Divisions in order to take advantage of their research findings and to remain abreast of management activities throughout the state.

However, as Section manpower has increased, so have its responsibilities. The time required for inspecting and commenting on dredge and fill projects has often limited the number of other, more long-range land planning activities that the staff has been able to comment on. Particularly urgent are the Developments of Regional Impact (DRI). The Florida Land and Water Management Act of 1972 requires that proposed developments of a certain magnitude be reviewed through the DRI process to give local and regional planners an opportunity to determine the impact of these projects on the economy, transportation needs, water, and, of special interest to us, the fish and wildlife resources of the area. Environmental section biologists have been requested to evaluate DRI applications and provide this information in a number of situations where potential losses to wildlife could be significant.

One type of development subject to the DRI process, and which often has a major impact on wildlife resources, is the large-scale "new community." For example, the Section provided an assessment of Arvida Corporation's proposed community of 100,000 residents in a sawgrass marsh adjacent to two of the water conservation areas in Broward County. Our interest in this project resulted not only from the potential loss of wildlife on the site but also because of the proximity of this project to the Everglades Management Area and its possible impact on wildlife management in this wetlands area. In a detailed report, the Environmental Section expressed concern over predicted problems of water quality, aquatic weeds, habitat losses, solid waste disposal, and future impingement on recreation and management activities in the conservation areas.

In this instance, the Regional Planning Council chose to recommend the development. Although the Section's efforts did not prevent a major loss of habitat, nevertheless the Regional Planning Council had access to a comprehensive wildlife report to aid in making its decision. Expanded input into these types of decisions must continue in order to convince decisionmakers of the importance of fish and wildlife in their considerations.

What is the dollar value of an osprey and its nest? As the human population pressure continues to grow, we are starting to appreciate more the recreational, aesthetic, educational, biological, social, and even commercial value of Florida's rich wildlife resource.

Photo By Janet Alexander

As part of its role in providing fish and wildlife comments for a broad range of land planning decisions, the Environmental Section participated in the selection of lands to be acquired under the Land Conservation Act of 1972. Valuable proposals supported by the Environmental Section and subsequently approved for purchase included San Felasco Hammock in Alachua County, Three Lakes Ranch in Osceola County, portions of the Apalachicola River floodplain in Gulf County, and portions of the Fakahatchee Strand in Collier County. Each of these purchases provides valuable wildlife habitat and Three Lakes Ranch, with over 50,000 acres, has already provided an extensive new hunting area for the sportsman.

The bulk of the workload of the Environmental Section continued to be in the area of providing fish and wildlife comments to the Trustees of the Internal Improvement Trust Fund on permit applications. One example of our involvement was the Cocoplum development in Dade County. This massive project, if approved, would have filled large areas of mangroves at what is now Tahiti Beach on south Biscayne Bay. The Game and Fresh Water Fish Commission opposed this project because of the large-scale loss of wetlands involved, and prepared a report outlining the values of these areas and pointing out the loss of wildlife that would ensue. Alternate recommendations were made, many of which were included in the recommendations of the Trustees' staff. The Environmental Section will also continue to make recommendations at the federal level of permitting in order to reduce the damages resulting from this work as much as possible.

Another type of Trustees project which has less of a direct effect on fish and wildlife but which may have important long-range significance is the maintenance dredging of harbors or existing channels. The Environmental Section, commenting on a specific dredging project in Jacksonville, carefully documented the problems associated with the proposed dumping of spoil from the dredging in shallow open waters, and recommended upland spoil disposal or, if necessary, deep water spoiling. The Corps of Engineers subsequently closed this portion of the St. Johns River to open water spoiling, but the problem remains in a number of ports throughout the state.

In a somewhat special case, Environmental Section biologists were requested to investigate the potential problems with a Deltona Corporation development in Volusia County. As part of the development, Deltona was draining many of its lakes, steeply grading the shoreline, and dredging much of the lake bottoms for fill material. There was considerable dispute over the jurisdiction of the Trustees in these lakes which resulted in lawsuits and countersuits. Because a wildlife officer had made the original arrest for violation of dredge and fill laws, the Commission was also involved in these suits. Section biologists determined that extensive damages had resulted from Deltona's work. The destruction of the shallow grassy areas around the edge had removed cover for forage fish and juvenile game fish and had eliminated valuable spawning areas.

The proposed construction of homes and lawns down to the edge of the lake will also increase the flow of excess nutrients and pollutants into the lake, and rapidly increase the aging, or eutrophication, of these lakes.

In addition to providing comments to the Trustees of the Internal Improvement Trust Fund, the Environmental Section provided fish and wildlife expertise to other agencies whenever necessary. The Department of

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Pollution Control, for example, went to court to stop the illegal construction of a causeway across the Jensen Savannas in St. Lucie County, and requested the Game and Fresh Water Fish Commission, through an interagency agreement, to provide an assessment of this causeway's impact on the natural resources of the Savannas. Environmental Section biologists responded with a report outlining the adverse effects that would accompany this project, and testified at the subsequent hearings. The results of this action were favorable, and significantly broadened the state's jurisdiction over freshwater wetlands.

A major category of development which often seriously affects fish and wildlife is the construction of highways by the Florida Department of Transportation. The majority of the Section's work with the Department of Transportation centered around reviewing the impact of proposed highways and associated bridges, causeways and storm drainage systems on fish and wildlife habitat. Section biologists often suggested alternatives that would reduce the impact on fish and wildlife habitat. Particularly important was our work in encouraging the Department of Transportation to span wetlands, especially marshes and river swamps, rather than filling these areas for a causeway. Aside from the direct habitat loss from filling, these causeways often interrupt the movement of waters in these wetlands during high water periods, with potential long-range adverse effects on both upstream and downstream portions of the wetlands system.

Environmental Protection also worked in close cooperation with the Department of Transportation in an effort to insure that hunters and fishermen will continue to have access to the fishing and hunting areas along Alligator Alley in Collier and Broward counties. Alligator Alley, utilized by a variety of sportsmen ranging from cane pole fishermen to half-track operators, is slated to become part of Interstate-75, a limited access highway. On the advice and urging of the Environmental Section, the Department of Transportation has tentatively designed access areas along the new highway route specifically for the benefit of hunters and fishermen.

This fiscal year also marked the introduction of the Power Plant Siting Act administered by the Division of State Planning. This requires that power companies plan their facilities well in advance, and outline these plans for state review. Since the expansion or new construction of power plants usually involves at least some impact to aquatic life in that area, the Environmental Section became involved in assessing the impact of these power plants on fish and wildlife. One of the recurring findings in several of these assessments was that direct losses of wildlife resources were limited when compared to the long-range losses resulting from the encouragement of increased industrialization and residential construction resulting from the increased availability of electric power.

In addition to participating in various aspects of state planning, the Environmental Protection Section was also involved at the federal level. The U. S. Fish and Wildlife Coordination Act states that the comments of the state game and fish administrator will be given equal weight with those of the U. S. Fish and Wildlife Service on federal projects having an effect on fish and wildlife. Corps of Engineers permitting procedures provide the Commission with an excellent opportunity to provide this input.

Another highly publicized example of the Section's federal involvement was the Moretti project on Key Largo. The developers did extensive dredging and filling in a mangrove area of Florida Bay without a federal permit. Environmental Protection's comments concerning this after-the-fact permit were submitted to the Corps not only for the purpose of assessing the damages already incurred but also to suggest restoration procedures. The permit was denied and the courts have since ruled that the developer must restore the area to its former condition, a decision that should be effective in warning developers to obtain permits before starting construction in those areas where the Corps of Engineers has jurisdiction.

Other responsibilities for input arose from our participation in the A-95 State Clearinghouse procedures where public works projects and proposals requiring environmental impact statements are reviewed. During FY 74 the Environmental Section reviewed proposals for harbor deepening, navigation channel dredging, and flood control and water management projects while also providing wildlife management comments for program reviews such as the Rural Environmental Conservation Program.

Fiscal 1973-74 was an important year for the Environmental Section and the environmental movement in general, and 1974-75 promises to be even more important, with the establishment of regional environmental centers throughout the state designed to minimize the complexity and cost for developers to gain ecological and land planning guidance. It will also be a year of reorganization for the state's environmental agencies. And, most importantly, it will be a year when the need for sound biological assessments of fish and wildlife values of Florida, and of the impact of various types of development on these values, will be needed more than ever before. The Commission's Environmental Section will continue to provide such assessments during this critical year.

Photo By Gene Smith

Demands of modern highway systems exert a substantial impact on the wildlife resources. Seeking alternative measures to some construction methods to minimize environmental damage is one phase of Commission action.

Gun Finishes

some gun refinishing projects are within the realm of the average do-it-yourself gun tinkerer, but others are best left to the professional

By EDMUND McLAURIN

EVEN THE BEST CARED FOR FIREARMS wear in hard use. Sooner or later the average gun owner has need of a complete rebluing job. Usually he gets the idea that he can do it himself. This belief is nourished by the large number of "easy-to-use" gun bluing preparations advertised in national outdoor magazines and stocked by sporting goods stores.

The advertised gun bluing preparations are mainly cold chemical blues, ideal for minor repair and small area touch-up jobs, but not intended for refinishing a complete barrel and receiver assembly for long life beauty.

In metallurgy, it is axiomatic that caustic solutions more deeply penetrate and permanently affect bright steel when both metal and chemical solution are hot. Among professional gun finishers, this calls for carefully prepared metal parts to be successively immersed in a controlled-temperature chemical solution for critically timed periods, alternated with buffing.

The ingredients of most of the hot tank method gun bluing solutions are highly toxic, often dangerous to handle, and not recommended for amateur experimentation. My advice is not to attempt hot tank bluing yourself. Basic equipment for such a job represents a sizable cash outlay and orderly assembly, besides the technical knowledge to properly carry out the demanding procedures.

In the best equipped professional shops, four separate gas-heated tanks are used, each large enough to accept long shotgun and rifle barrels and disassembled parts.

Tank No. 1 is used to degrease gun components, quite often with a hot water solution of common Oakite household detergent.

After thorough degreasing, parts to be blued are transferred to Tank No. 2, containing a very hot bluing solution. Each part is suspended on wires so that it can be raised at intervals for inspection. When the desired shade of metal surface finish is obtained, the blued parts are placed in Tank No. 3, containing clean, scalding rinse water moving in agitation.

Following thorough rinsing, the parts are next moved to Tank No. 4, which contains hot oil that completely kills any chemical action of any bluing salts that might possibly remain on the metal.

Since gun steels are not all alike in carbon content, sometimes the color achieved is not what it should be. This means more shop work, primarily another period or two in the hot bluing solution tank, followed by the other steps.

But before chemical ever touches gun metal, a great deal of preparatory work must be done. Rusty or originally blued parts must be smoothed and polished to gleaming brightness, unmarred by the slightest surface blemish.

The abrasives used for metal smoothing and polishing are highly specialized and of several different types; each must be used with knowledge and skill. In fact, most of the work of a good rebluing job is done outside the hot solution tanks!

The special equipment, the working time, and the technical knowledge required are the basis for the cost of a top quality hot tank gun bluing job—generally, in the neighborhood of $40 for a rifle or shotgun, and $35 for the average handgun.

Shotguns with a full-length soldered rib, or a ventilated rib having numerous soldered barrel-connecting points, often cannot be hot tank blued, but require one of several slow-rusting bluing processes.

Professional refinishers of my acquaintance do not like to do hurried jobs. Most accept work only with the understanding that delivery need not be expected in less than 4 or 5 weeks. It takes time and a lot of close attention to do really top quality gun finishing, they point out.

Similarly, most professional refinishers prefer that customers bring in a complete firearm rather than one disassembled. This gives him a chance to check mechanical operation prior to refinishing and reassembly, and also reduces the problem of inadvertently lost parts, an all too frequent occurrence when the customer does the disassembling.

One of the most popular commercial gun refinishing firms in the Southeast is Hayes' Gun Finishing Service, 914 Turner Street, Clearwater, Florida 33516. In addition to hot tank and slow-rust rebluing work, gun stock modification and refinishing services are offered. Hayes has been in operation for more than 20 years, and has long been a regular advertiser in the AMERICAN RIFLEMAN Magazine, monthly publication of the National Rifle Association. (Continuous advertising in the AMERICAN RIFLEMAN is something of an endorsement in itself, for the magazine rides close herd on its trade

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advertisers. To be an accepted regular advertiser, a firm has to have a good record of service to NRA members and shooters in general.)

Besides cold chemical bluing for small touch-up jobs, and the hot tank method when a deeper, more durable gun finish is desired, there are various other practical processes for finishing gun metals. As the late Clyde Baker, an acclaimed professional gunsmith of the 1930's, once pointed out, available gun metal finishing methods may be classified under four general heads: (1) chemical solutions—either hot or cold—which cause surface oxidation and resultant metal coloration; (2) chemical solutions which actually change the surface of gun steel into a different substance; (3) direct heat treatment of certain component parts, or a combination of directly applied heat working in conjunction with a chosen chemical, until surface oxidation and desired color develop; and (4) plating.

In layman's language, these processes simply embrace hot tank bluing, cold chemical bluing, controlled rust browning, Parkerizing, nickel or black chrome plating and recently adopted Teflon coating. The hot tank method has already been described.

Long before today's much admired dark blue finishes came on the scene, guns were commonly browned by deliberately rusting their exterior surfaces with vinegar or some other rust-causing solution, then the rusted parts were rubbed with powdered pumice until only a fine, dark brown patina was left.

Plum Brown, a ready-mixed metal browning solution sold by the Birchwood-Casey Company, is a simple, safe commercial preparation to use for a home metal browning job. Its only inconvenience is the requirement that metal parts be mildly heated before the chemical is applied.

Best part with either the simple salt or the commercial Plum Brown solution is that one can practice on a discarded barrel at practically no cost, before attempting to brown a favorite firearm.

For minor repair of blemishes on a gun's factory-blued finish—primarily small bare metal spots and scratches on the barrel or receiver—the cold chemical blues will usually give satisfactory results if instructions are carefully followed. They are safe to use if cotton gloves are worn and care is taken to keep liquids from splattering in or being thoughtlessly transferred to the eyes.

Numerous ready-to-use products are available. They include Birchwood-Casey Perma Blue, G-96 and Magic Blue paste, Outers Laboratories liquid Gun Blue, Minute Man Gun Blue, Oxpho-Blue, Numerich Arms 44-40, and Stoeger's Gun Blue.

Besides jar packaging, the G-96 people market their cold chemical gun bluing formula in a pencil-like applicator for precise application to small spots and hairline scratches.

After bare metal spots have been reblued, they should be buffed for color tone blending and high luster, as shown.

Some of the products are notably better than others. A test of quality of performance is how well cold chemical-blued steel withstands rubbing with fine steel wool.

Oxpho-Blue, available from Bob Brownell, Montezuma, Iowa 50171, not only withstands the steel wool abrasion test, but is actually applied with fine grade steel wool. However, as with other commercial cold blues, the quality of an Oxpho-Blue finished job depends on how well the surfaces are prepared prior to application of the cold blue. Metal to be blued must be glass smooth and immaculately clean, for best results.

Preliminary high-gloss metal polishing is not required when Oxpho-Blue is used—only polishing to a soft sheen, grease-free condition. Many professional gunsmiths use Oxpho-Blue for touch-up jobs that must be precisely matched to the color of the factory finish. The solution offers considerable color latitude.

A professional secret of successful use is to rub down the first completed application of Oxpho-Blue with fine texture steel wool until the metal has a gray, smooth sheen, then apply a second very light coat—just enough to impregnate the cotton swab applicator. Too much solution the second time around and you will likely end up with a different color tone than desired. Fortunately, no permanent harm will be done. Another attempt can be made after the "overdose" has been removed by buffing.

Many modern firearms, particularly shotguns, now come with aluminum alloy receivers, factory finished black to harmonize with steel barrel finishing. Being relatively soft, though strong, the aluminum alloys invariably scratch more easily than steel and, seemingly, the blemishes are more conspicuous.

For bluing aluminum alloy, professional gunsmiths use selenic acid of 20% strength dissolved in very hot water. With the operator wearing protective gloves, cleaned parts to be darkened are placed in the hot solution and watched until they are the right color, then removed and rinsed. The dark finish thus achieved is quite permanent. But leave this method to the professionals!

A simple method frequently used by professionals, and also safe for home hobby work, is a water solution of Oakite household cleanser, in the proportion recommended for household use. Cleaned parts are immersed in a near-boiling mixture of Oakite solution until a dull black finish develops, but not so long as to be eroded by the caustic chemical properties of the Oakite. Follow the treatment with a clear water rinsing.

Even better for amateur use, in my opinion, are ready-made, easily-applied commercial aluminum darkening "touch-up" solutions. Hobby gunsmiths are urged to use one of these precisely formulated products. Birchwood-Casey Chemical Corporation, Eden Prairie, Minnesota 55343, and Brownell's, Montezuma, Iowa 50171 are sources. As with chemical cold blues made for use on steel, manufacturer's directions for application of the aluminum alloy darkening solutions should be followed to the letter.

A most satisfactory professionally-applied finish for a hunting gun is Parkerizing, or phosphatizing, whereby a very durable, rust-resistant, dull gray or grayish-black finish is achieved by the boiling of prepared component parts in a solution of phosphoric acid and water. For the home gunsmith, the process is too complicated to be done in professional manner. Also, Parkerizing is a patented process, developed by the Parker Rust Proof Company, Detroit. Professionally needed chemicals for Parkerizing are distributed to gunsmiths through established trade sources. Brownell's, Montezuma, Iowa 50171, and the National Rifle Association, 1600 Rhode Island Avenue, N.W., Washington, D.C. 20036, can furnish you the names of gunsmithing firms that do Parkerizing work.

The Parkerized finish is good choice for refinishing already badly rusted, pitted exterior metal surfaces. Also, being virtually nonreflective, it is a good choice for the hunter of cautious game.

A finish somewhat similar to commercial Parkerizing can be achieved by fine-grain sandblasting of metal surfaces until a fine pitting effect results, followed by application of a cold chemical bluing solution or Plum Brown browning solution, without final polishing. Sandblasting of a rusted firearm can be done by any commercial source doing fine grain sandblasting work, but whoever does the work should understand just what metal areas are to be subjected to abrasion and which ones are to be protected.

Black nickel finishing, commonly called black chrome by gun writers, is the professional specialty of Marker Machine Company, Charleston, Illinois 61920. This finish has deep black, soft sheen appearance and is very durable. The Marker Machine Company people also specialize in hard-chroming of interiors of shotgun barrels.

Some long guns intended primarily for show, and many handguns, are often bright nickel plated, for eye appeal.

A quality nickel-plating job requires a competent professional. Unless done right, nickel-plating will eventually peel off like tinfoil. Nickel itself has little affinity for steel. On the other hand, copper has strong bonding alliance. The plating is done by electrolysis. Quality nickel-plating involves an initial copper-plating followed by the bright nickel.

As might be expected, stainless steel barrels are invariably difficult to give a deep blue color finish. The usual procedure is to first copper-plate the stainless steel, then blacken the copper chemically. Some very nice final finishes are so achieved. The finish given the now-discontinued Marlin Model 455 bolt-action big game rifle, which came with a stainless steel barrel, can be mentioned as a specific example.

Teflon, the same tough, slippery coating now applied to various cooking utensils to prevent food sticking, finds practical application as gun metal finish. Baked on, it protects gun metals against rusting by providing a tough, waterproof coating that also has lubricating quality for moving mechanical parts.

Application of the baked-on Teflon-S (gun finish) involves considerable time and technical knowledge. Relatively few firms furnish this type of gun metal refinishing.

In Florida, Teflon coating of a gun can be had through Bill Jackson's, Incorporated, 1100-4th Street, St. Petersburg 33701, agents for West Coast Secoa, Incorporated, a Lakeland, Florida, firm specializing in quality Teflon work for the sporting goods trade. National Gun Traders, Incorporated, Miami 33135, and Southeastern Coatings, West Palm Beach 33406, are two other Florida-based Teflon processing firms.

A preparation originally formulated solely to preserve a gun's factory finish by preventing rust, yet which also brings out the beauty of blued metal surfaces, is Rusteprufe. I became acquainted with the product in the mid-1940's when testing the efficiency of rust-inhibiting preparations then on the market. Rusteprufe is still made by company of that name, at Sparta, Wisconsin 54656. Besides bottled form, the liquid is also available in wide-mouth jars, with a chamois skin gun wiping cloth. If there is any blued finish left on an old gun, Rusteprufe will bring it to life while also protecting against rust. ●

The Bald Eagle

By MORRIE NAGGIAR

THE POUNDING ON THE KITCHEN DOOR had that undeniable ring of urgency. I jumped up, dumping over a half-filled coffee cup on the table. "Get your binoculars and come quick!" shouted Wayne as I threw open the door. Careening out into the yard, I expected to encounter nothing less than a herd of rampaging elephants or something equally exotic. Instead, he pointed to a bird swinging in slow, majestic circles high over the hatchery ponds.

"An eagle, isn't it?," he demanded. "It is, and a beauty, too," I reported to him. Even without the glasses I could see clearly the white head and tail of the big bird. I passed the binocs to Wayne and stood wondering at his excitement. I'd always figured that, to him the bird world consisted of three parts: cranes, chicken hawks, and tweety birds. Period.

But then, the eagle has a way of doing that to people. Regal in bearing, either at rest or on the wing, the bird just naturally draws attention. Eagles of one kind or another undoubtedly have been used more than any other of nature's creations as an emblem of the fierce and noble spirit man so admires. No matter that our bald eagle is more a fish eater than a hunter, a scavenger rather than a relentless pursuer of strong and agile game. The bird's appearance seems the embodiment of strength, vigilance, and nobility. What more could be asked of any national symbol?

Mature Florida eagles weigh from 10 to 13 pounds, with the female averaging somewhat larger than the male. The white head and tail does not appear until the 4th year of the bird's life. The bald eagle mates for life, but if one of the pair dies, the other will seek an unattached bird to replace the lost mate.

The eagle is an early nester. Here in Florida, egg laying may start in early November. Some birds are slower in getting about the chore than others, and may just be getting under way by late December. The usual clutch is two, although occasionally a nest will contain three eggs.

About 35 days of incubation are required to hatch a brood. The male shares in the incubation duties and does his part in the care of the eaglets. Since the young require 6 months of attention before they are ready to take care of themselves, it is no small chore to successfully bring off a brood.

Photo By Wallace Hughes

Although there are some eagles in the state at all times of the year, most of them apparently leave for a short period during the summer. Even young birds of the year have been found in eastern Canada, a good 1600 miles from their Florida nest, during their first summer.

Beginning in September, the eagles return to their home grounds and soon start cleaning up and adding to the massive nests, in preparation for the long, drawn-out chore of rearing yet another brood.

Dave Peterson, U.S. Fish and Wildlife Service supervisor in Gainesville, is coordinating Florida eagle nesting survey information gathered by state, federal, and private observers. In an interview in mid-January, Dave said, "There are apparently more active nests in Florida than we originally thought. The 500 to 1,000 nesting pairs some recent estimates held now appears high, however. Perhaps 275 to 325 breeding pairs is a more realistic figure."

Peterson pointed out that recent survey activities seem to indicate that many formerly favored nesting sites on the coast are being abandoned for interior lake and marsh locations. It is the development of formerly wild lands that is the most disruptive factor in eagle production in the state. "Birds that have grown up where there is much developmental activity seem to tolerate human intrusion much better than those that were reared in a more isolated wilderness setting. We may be developing a 'city' eagle to supplement the 'country' eagle," Peterson says.

At any rate, the eagle picture looks a bit brighter than it has for quite a few years in the recent past. With care, our national bird should be around to liven up Florida's skies for a good many years to come. ●

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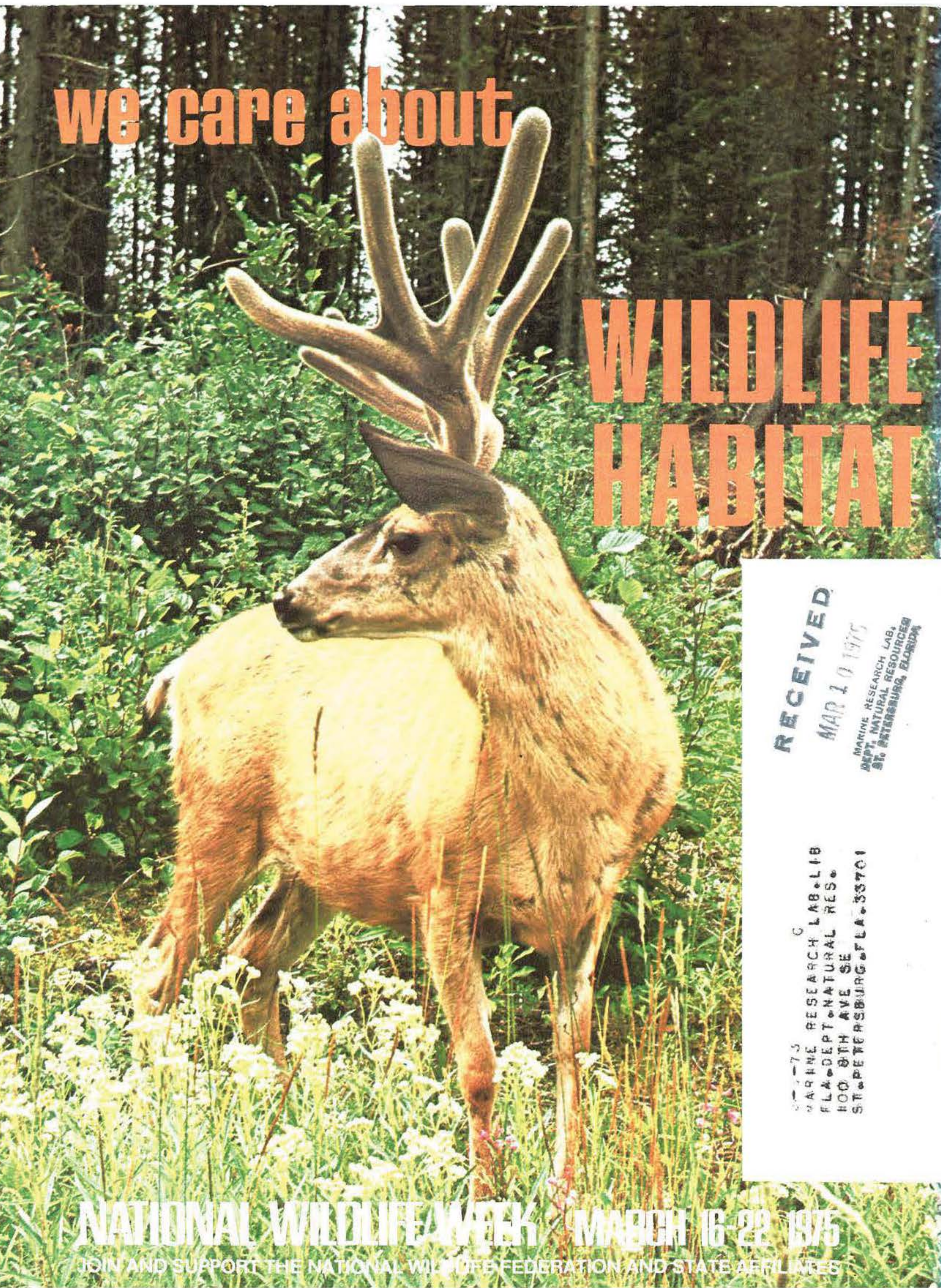
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